

# Understanding and improving the e-commerce packaging sorting process

Study results



Donnons ensemble une  
nouvelle vie à nos produits.

GAME CHANGERS





# General structure of the study

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We analyzed consumer perception around e-commerce packaging and identified levers of action to improve sorting, and thus the collection and recycling of these packaging.

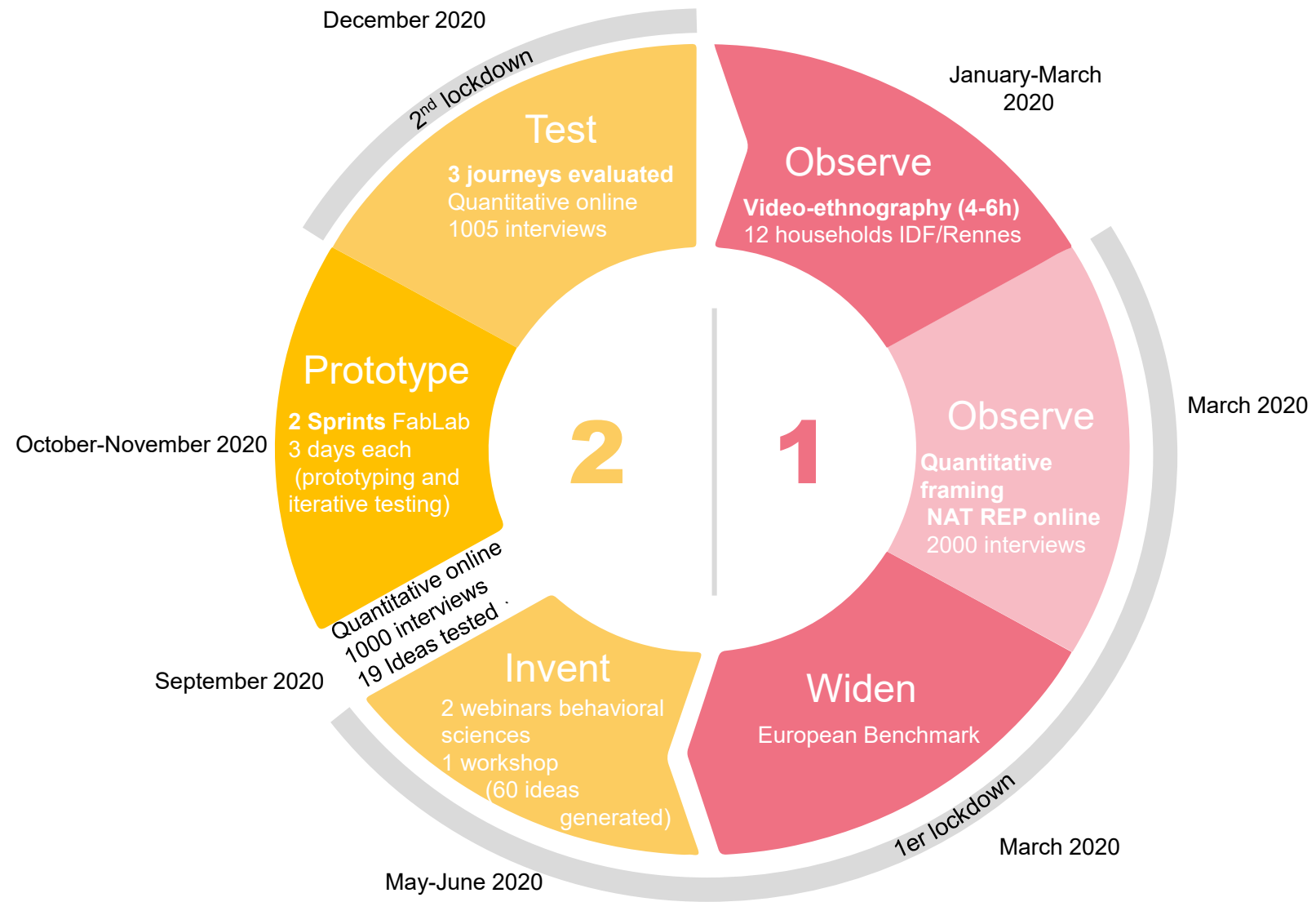
**1**

**Establishing a national overview of the sorting gesture of these packages by the French e-commerce customers.**

**2**

**Identifying ideas at different stages and levels of the packaging to facilitate and improve sorting and recycling.**

# Year 2020: explorations and experiments



# WHAT IS DESIGN THINKING?

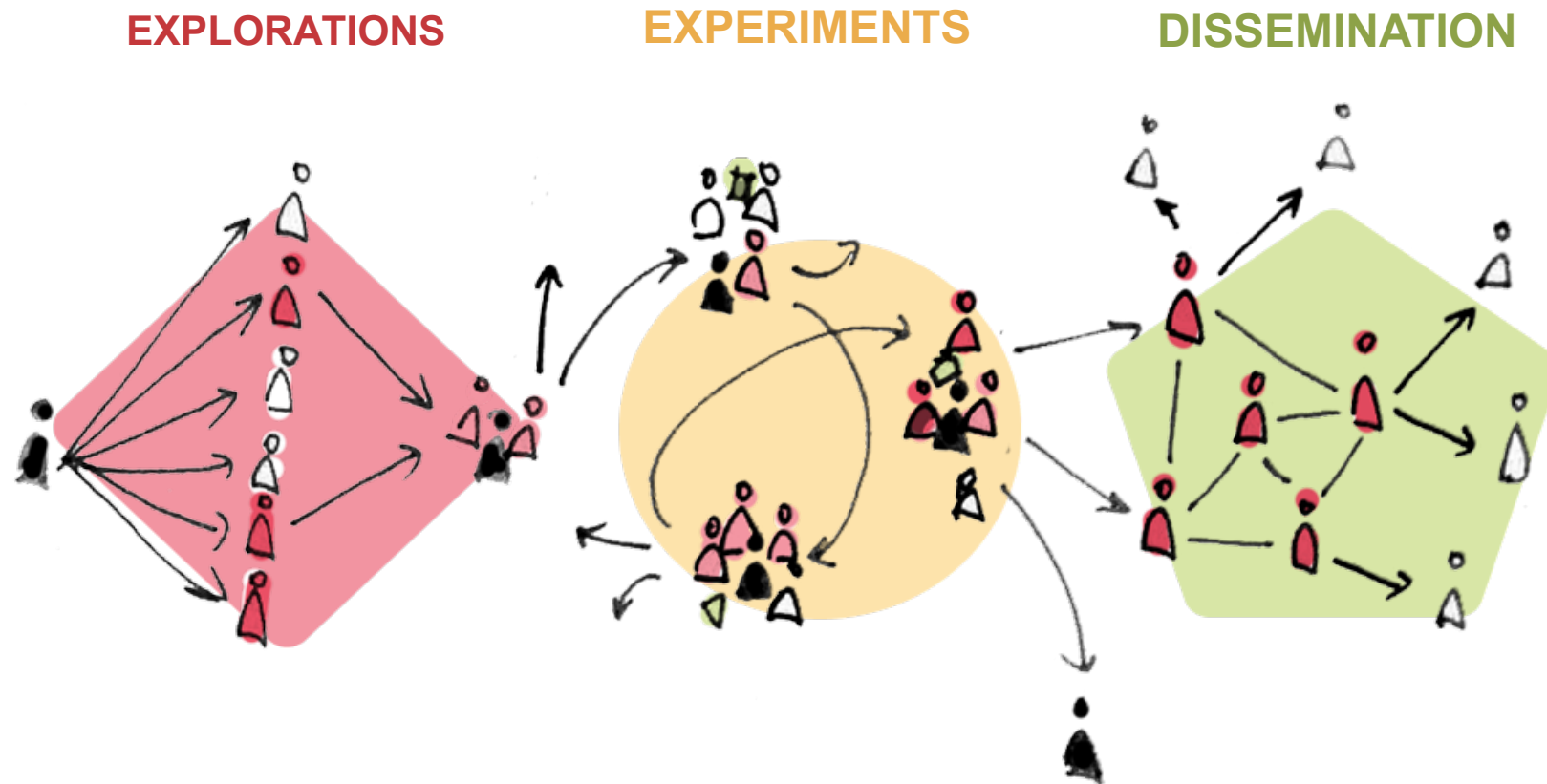


It's not enough to ask people what they need



# The key steps in design thinking

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# Online shopping frequency on the rise in 2020

Food products are the most frequently purchased

Increased purchase frequency for all sectors in 2020

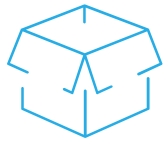
	ST At least once a month		ST Has bought on the internet	
	Vague 1		Vague 1	
Food items	59	+4	79	+7
Beauty products	25	+3	79	+2
Clothing, shoes, fashion accessories	24	+3	93	+3
Books, CD/DVD, video games	20	+3	87	+3
Housing accessories, DIY	18	+4	88	+1
Toys and games	12	+2	80	+4
Tech and electronic items	9	+1	90	+2
Furniture and decorations	9	+1	82	=
Household appliances	8	+2	86	+2

A3. How often do you buy the following products on the internet?  
Base : Ensemble (1005)



# Diverse delivery methods: at home remains privileged

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**91% have their  
parcel delivered to  
their home**

(average for 2000 and 1005 participants. Poll  
March 2020 and December 2020)

**2,3** average delivery modes

2,3 for families

2,5 for 25–34-year-olds

2,7 among large buyers (+21 parcels per year)

**Popular channels: at  
home in their  
presence, in the  
mailbox, in relay  
point/La Poste**

**Strong increase in  
click and collect over  
2020  
+10pts in urban areas  
+5pts in rural areas**



# Understanding the e-commerce packaging sorting gesture

Results of the exploratory study



Donnons ensemble une  
nouvelle vie à nos produits.

GAME CHANGERS





## 5 major themes

**01**

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**E-commerce packaging:  
what are consumers'  
expectations?**

**02**

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**Opening: the high point  
of attention**

**03**

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**Say-Do Gap of the  
sorting gesture**

**04**

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**Large packages to store  
smaller ones**

**05**

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**Reuse and  
reutilization: a  
strong trend**

# 01

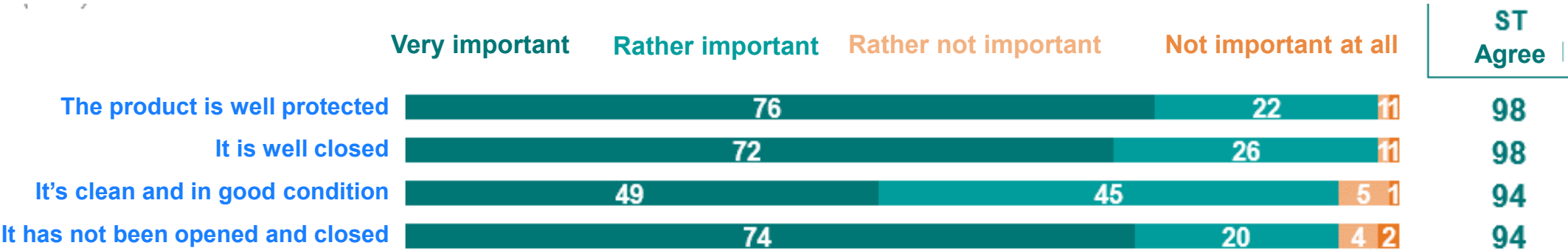
## E-commerce packaging: what are consumers' expectations?





# Packaging's primary function: protecting the product

B2. What is important to you in the packaging of a product purchased on the internet?  
Base : Ensemble (2000), mars 2020

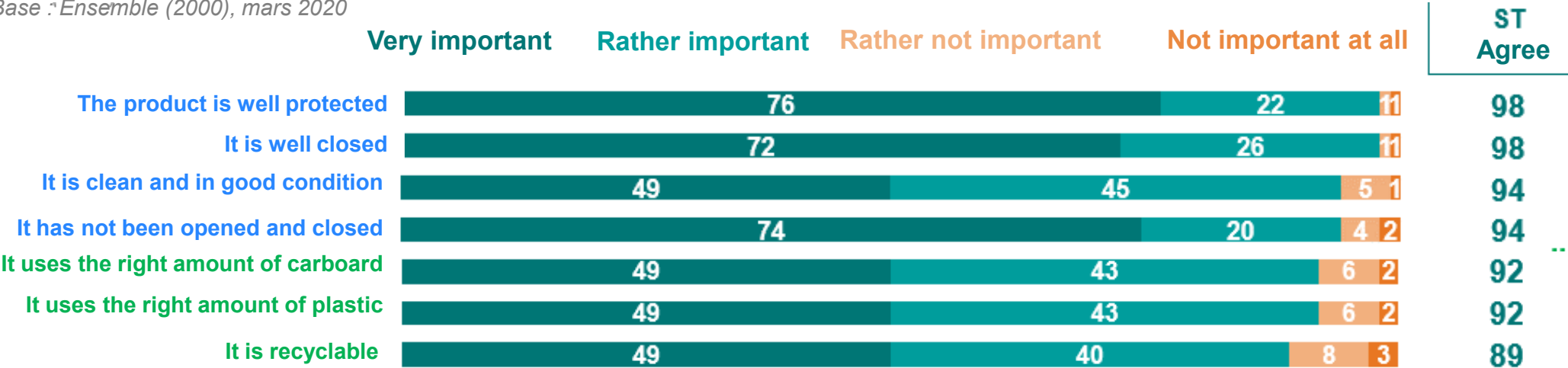


According to e-buyers, the concepts of product protection and packaging safety are most important at more than 94%

→ What function comes in 2nd place? Practicality or environmental impacts?

# Environmental impacts in 2nd place

B2. What is important to you in the packaging of a product purchased on the internet?  
Base : Ensemble (2000), mars 2020



Environmental impacts come in 2nd place ahead of the practicality of the packaging!

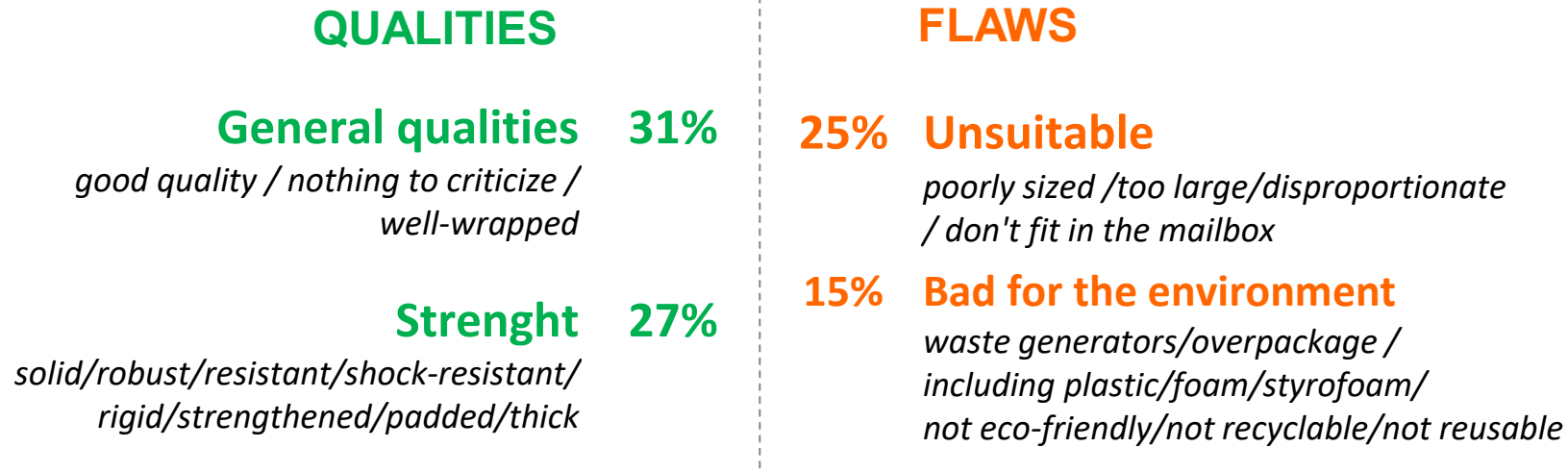
→ E-buyers have high expectations about environmental aspects



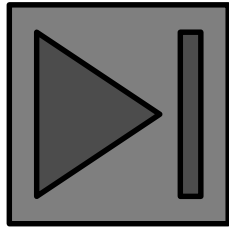
# A perception of packaging that does not meet expectations

B1. In general, what do you think of the packaging of the products you buy on the internet? What are their qualities? What are their flaws?

Base : Ensemble (2000)



Expectations are all the higher because environmental aspects are the least well valued on existing packaging (oversize and environmental impacts)

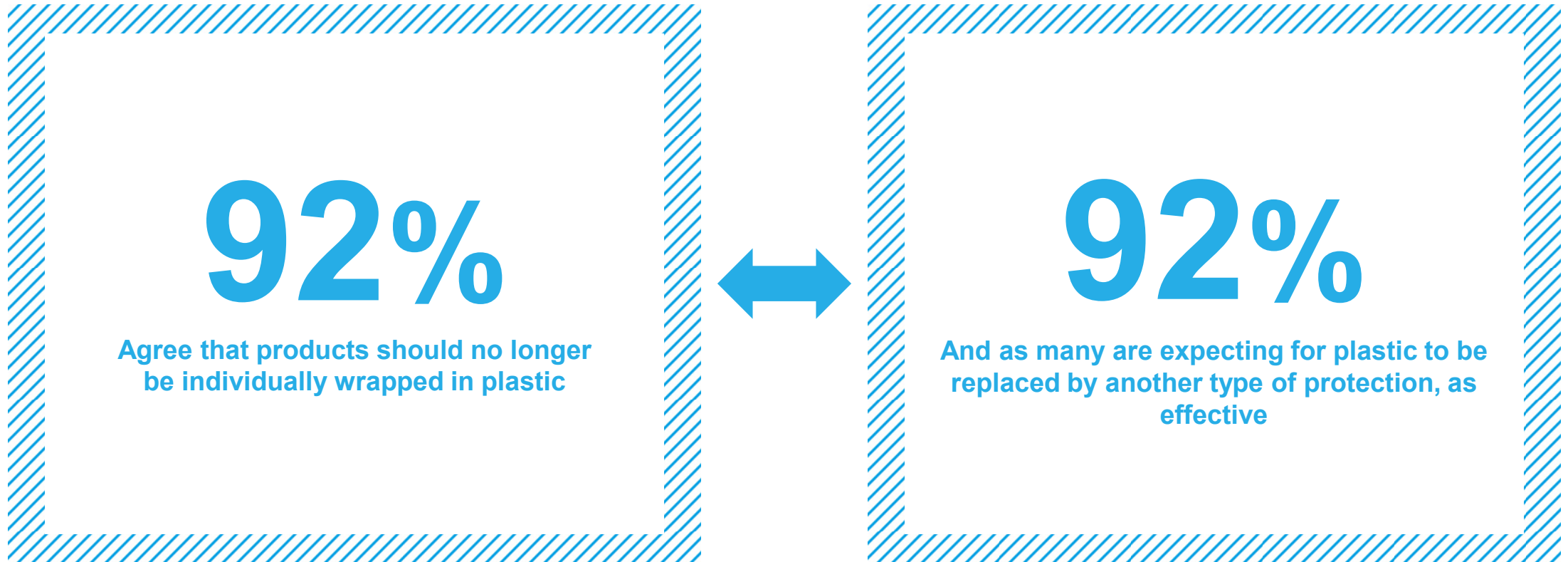


Play the video :

<https://vimeo.com/528282529/c6b3975aaf>

## Strong expectations for a solution substitutive to plastic

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*Base 2000*



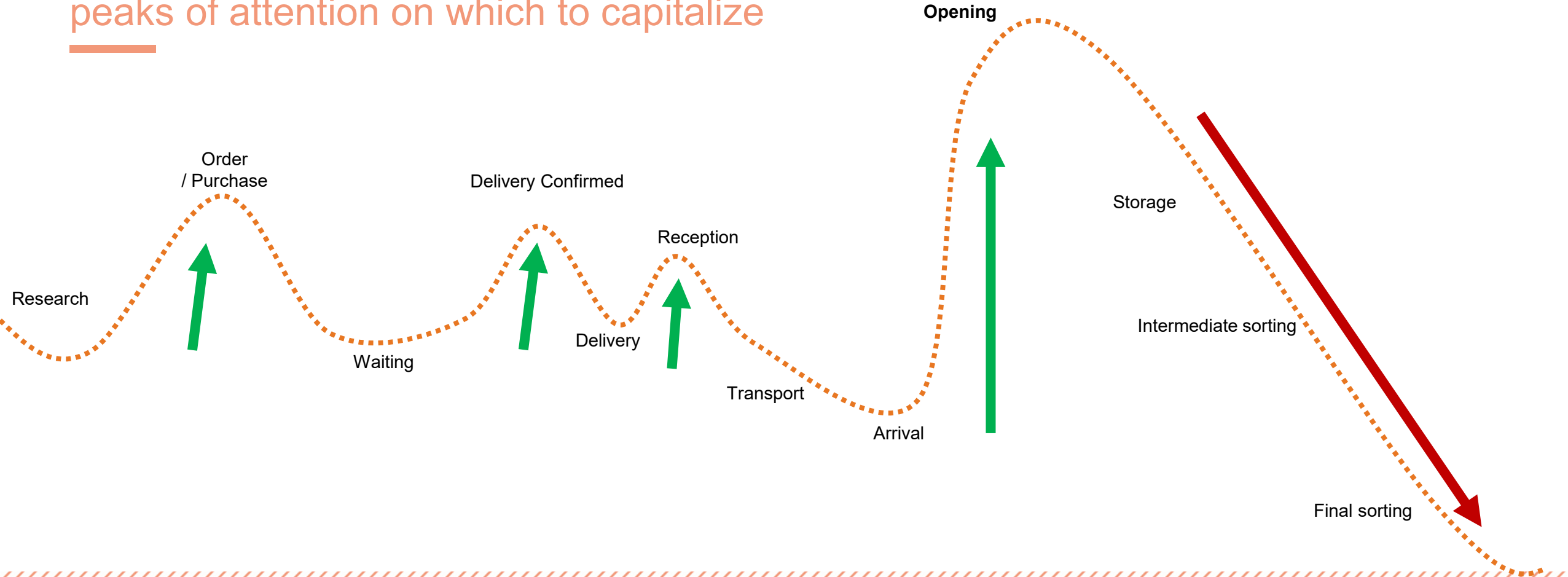
# 02

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## Opening: the high point of attention



# The emotional rollercoaster: peaks of attention on which to capitalize



**A highlight at the opening of the package which contrasts with the rest of the route**

After receiving it, the opening does not take long, the goal: to discover the contents of their "gift"

# A form of excitement during the opening... Several techniques are being implemented

## From the fastest

→ Hand-torn



## To the most careful

→ careful cutting of scotch tape, bags with a knife or scissors (if possibility to return)



« I try to be careful so that if it does not suit me, I return it with the same packaging [...] otherwise I would have torn with the hands »

(Nabil, Family, appart., Paris 13)

Including for the packaging of the products themselves





# Difficulties perceived differently before and after opening

The upstream efforts are compensated by the pleasure of discovering the product.

But once the package is opened, efforts are experienced stronger

## PLEASURE of e-commerce buying

- Easy, no schedules
- Comfortable, delivered
- Saving time and energy
- High availability and product choice
- Attractive prices, free returns

## EFFORT of sorting gesture

- Requires some thought
- Linked to dirty/waste
- Takes time/energy
- Not rewarding or attractive
- Cumbersome

« I think this place is dirty  
(yellow bin). People throw  
away anything. »  
(Mathieu, Rennes)



« It's a chore, and she's  
always waiting for me to go to  
bed, in my pajamas, to tell  
me I have to take out the  
trash.. »  
(Nabil, Paris 13)

# 03

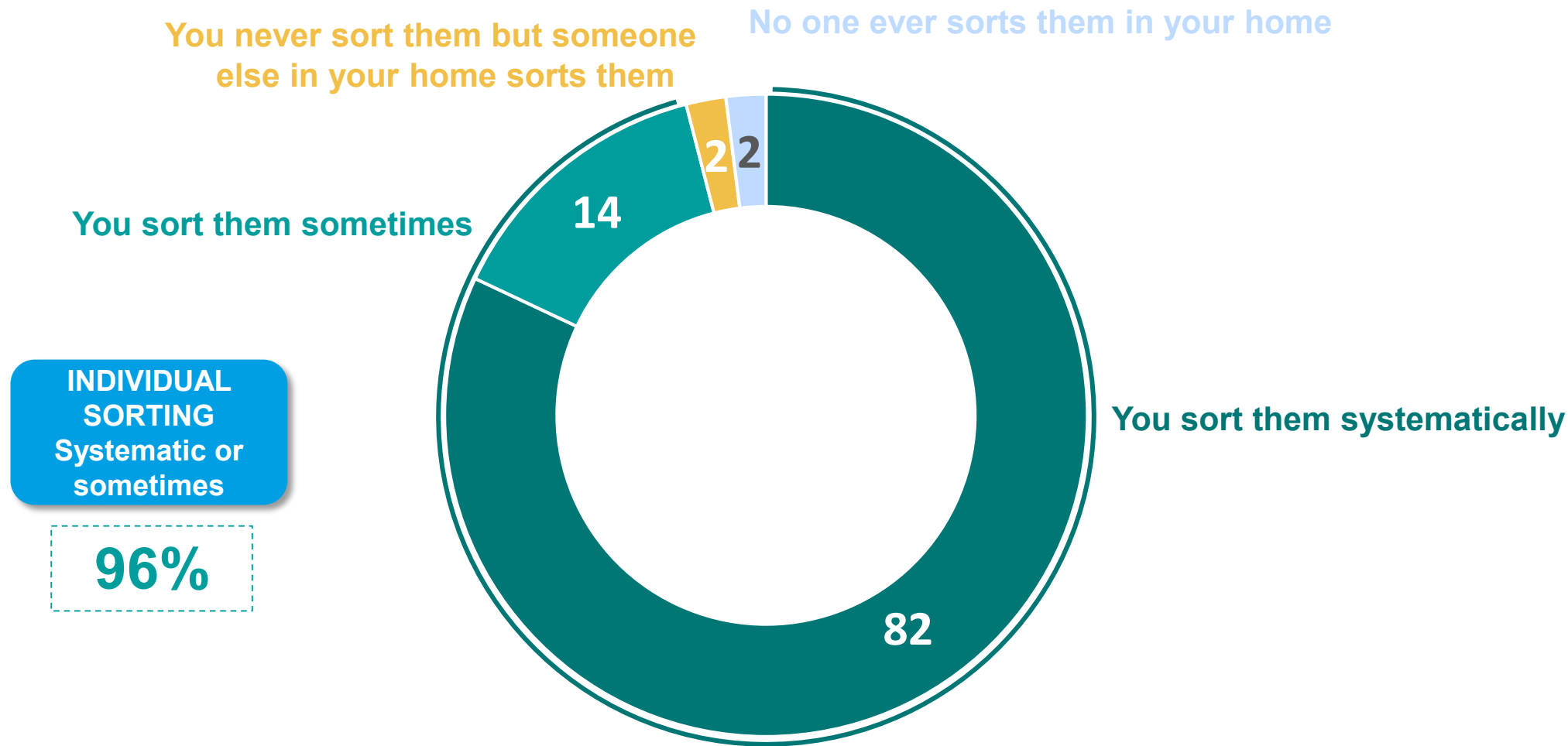
## Say-Do Gap of the sorting gesture

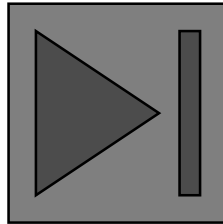


# A majority of e-consumers systematically sort their packaging

F1. You would say that in general regarding the packaging to be sorted (plastic, cardboard, metal)...

Base : Ensemble (2000)





Play the video :

<https://vimeo.com/528281536/14ab01bf82>



# Plastic elements cause the most sorting errors

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**80% Good**  
**answers** on the  
sorting of paper and  
cardboard items



**59% Good**  
**answers** for plastic  
envelopes



**50% Good**  
**answers** for plastic  
cushioning elements



# Doubts also for the cushioning elements

- **1 in 5 people** is not sure where to put the plastic cushioning elements.
- **58%** think plastic packaging aren't recyclable.



Cushioning particles  
(Base: 1038)



Foam  
(Base: 979)



Polyethylene foam  
(Base: 976)



Bubble Wrap  
(Base: 862)

## The size and shape of the item may influence the perception of recyclability

C2. Pour quelles raisons estimez-vous que cet éléments n'est pas recyclable  
Base : Ensemble (2000)



Frisure papier  
(Base: 251)



Papier carton souple  
(Base: 142)

L'emballage est trop petit pour être recyclé

22

Le matériau ne se recycle pas

16

La consigne de tri

15

Ma ville ne le prend pas

11

Le matériau est trop souple

9

Le matériau est trop rigide

3

5

13

14

10

20

7

# What is the best support for the sorting instruction?

## According to 50% of e-buyers, the best support for the sorting order is the parcel

G3. Finally, what do you think would be the best way to inform you of the sorting instructions ? Base : Ensemble (1005)

On the parcel	50
On the sorting bin / dedicated space	43
By SMS at the delivery	34
By email when order is confirmed	23
By SMS when the package is shipped	16
On the local newspaper	7

But less than 1 in 10 people remember seeing a sorting instruction on the packaging





# Physical and dimensional constraints added

- Difficult-to-handle, rigid "out-of-size" packaging



- A complex flattening process, which requires some physical effort to detach, then roll the package on itself or lay it flat.



These constraints lead to bad practices such as:

Allow the cardboard to "soak" in the rain to soften it



Throw out of the bin





8% of e-commerce buyers report dropping their packages off the bin





# A ripple effect of bad practices

## In the city centres

« we have no yellow bins but because as we have a lot of plastics, we put everything in a cardboard box the evening they pass »  
(Shopkeeper, Arpajon)



- Refuse workers collect these deposits.
- Some municipalities indicate this possibility of deposit on their website.



**At the neighborhood, district and even city level this creates a form of "normalization"**

## In common and collective spaces

« when I moved I was throwing boxes everywhere and removing my name on the labels so as not to be frowned upon from the building »  
(Clémence, Paris 12)





## Intrinsic motivations out of sync with the right sorting gesture

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*« we put everything in a bag because when the refuse workers come, they put things everywhere and at least there we are certain that it will go in the truck, not on the road or outside »*

**(Julien, Draveil)**



**A gesture of nesting to "serve" in the desire to "do well"**

# 04

## Large packages to store smaller ones



# Large packaging often stored

They can be stored, sometimes for over a month, before being thrown.

1/4

Of e-buyers store the bulkiest packaging (excluding envelopes) before getting rid of it

1/3

store them for more than a month when stored

28% stored it before throwing it away

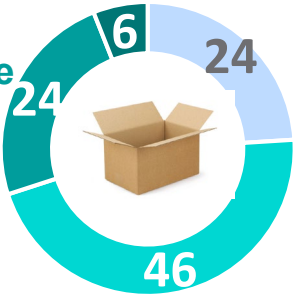


10% stored it before throwing it away



More than 6 months

Between one six months



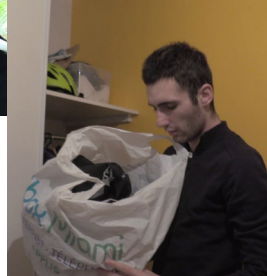
Less than a week

Between a week and a month

# Undersized intermediate containers



Put the smaller in the largest



Use a "disposable" bag  
= Nesting



Use a "reusable" bag - tote bag or shopping bag (which should not be dirty because it is kept)



*"The easiest thing for me would be to put everything in one box and take it all downstairs »*  
Matthieu., Rennes)



"Cramming" in a small trash can

Or drop on/next to it until it is emptied



# A misunderstanding of nesting problems

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## Why un-nest all the elements when everything goes into the sorting bin?

**14% of respondents said that packages should be nested before they are placed in the sorting bin.**

**This gesture of nesting is quite visible in reality, especially for the envelopes**

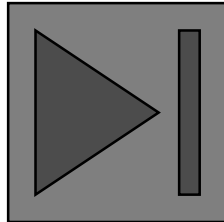
### The perceived benefits of nesting:

- To make it take up less space in the trash / sorting bin
- To make it easier to transport
- To not lose elements in the transport to the bin
- To not dirty the bin

# 05

## Reuse and reutilization: a strong trend





Play the video :

<https://vimeo.com/528280519/ea34abc461>

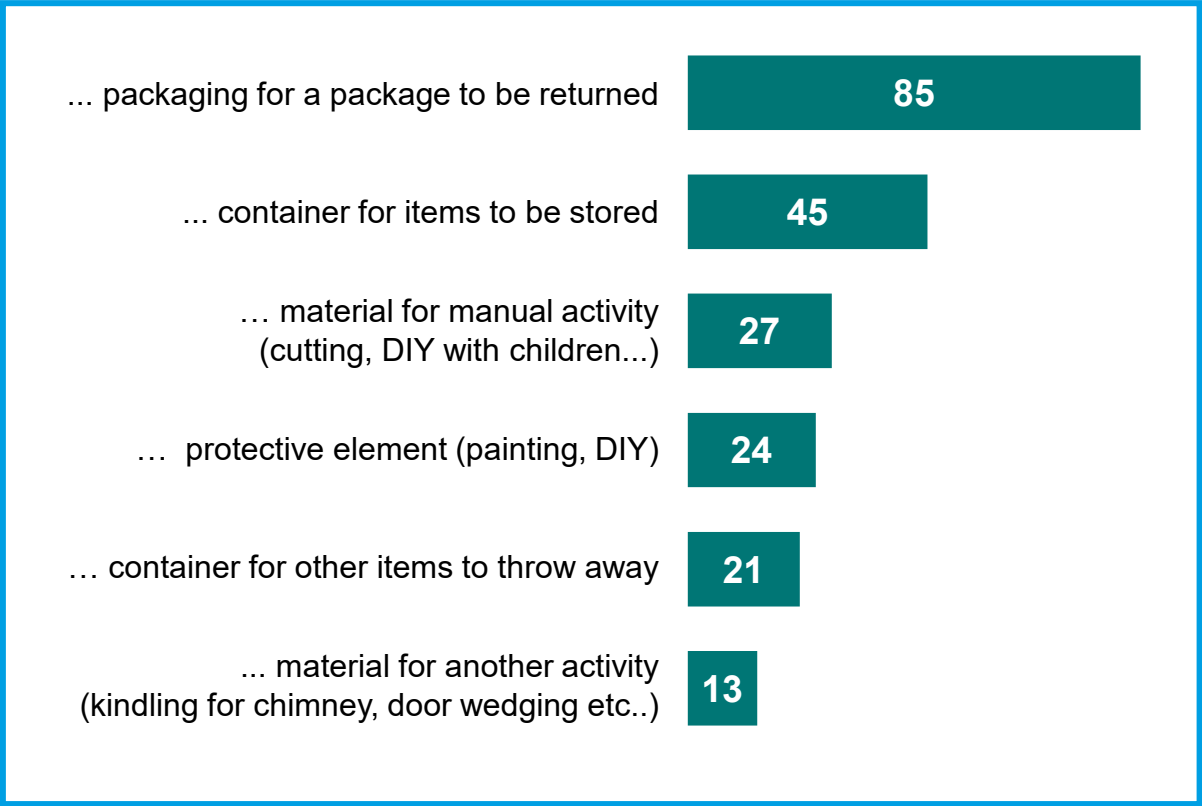
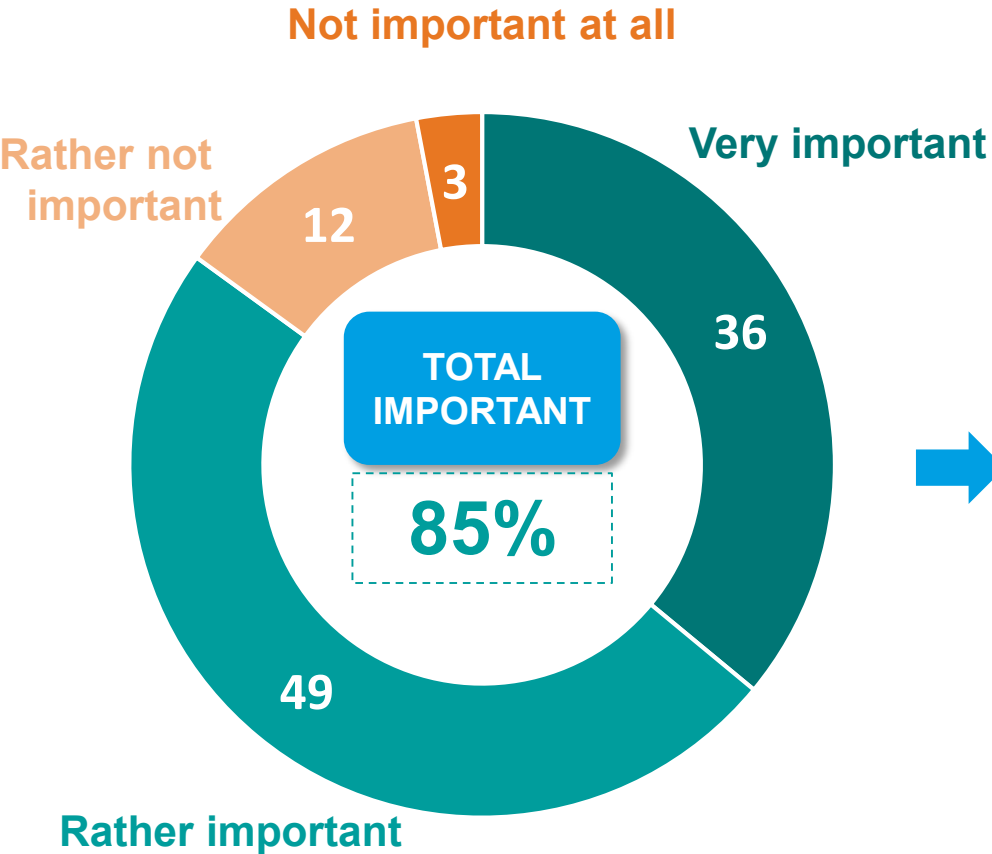
# E-buyers who plebiscite reuse

G9. Would you say it is important for you to be able to reuse the packaging of a product purchased on the internet?

Base : Ensemble (1005)

G10. What types of use in particular would you like to be able to reuse your packaging for? Such as...

Base : A ceux pour qui c'est important de pouvoir réutiliser ses emballages (857)





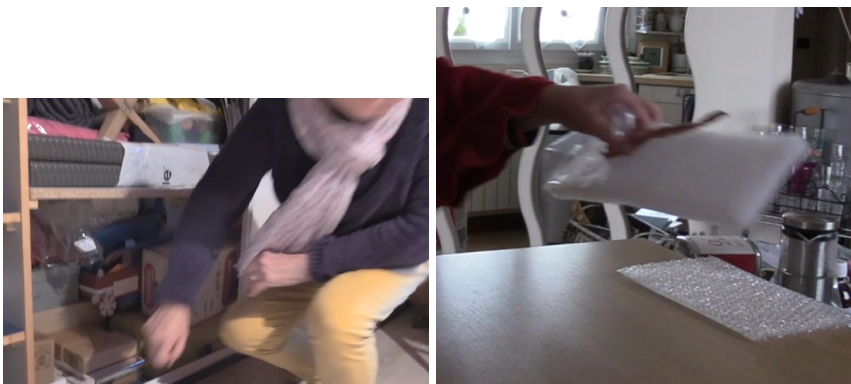
# A strong trend towards reuse

## 1/3

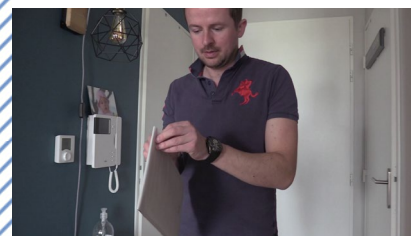
E-buyers reuse their e-commerce packaging. This opens up perspectives in the design to facilitate flattening and reuse.

### The "just in case"

For a move, for a friend, for his grandfather who does DIY, a gift box, artistic activities, school, etc.



### Internet resales



« This envelope is almost new. It would be a shame to throw it away. I'll keep it in case I need it [...] I keep the cardboard in my car and I cut pieces for when I sell on the internet »

(Sébastien, Family, appart., Rennes)

# Plastic envelopes reused less often than carboards

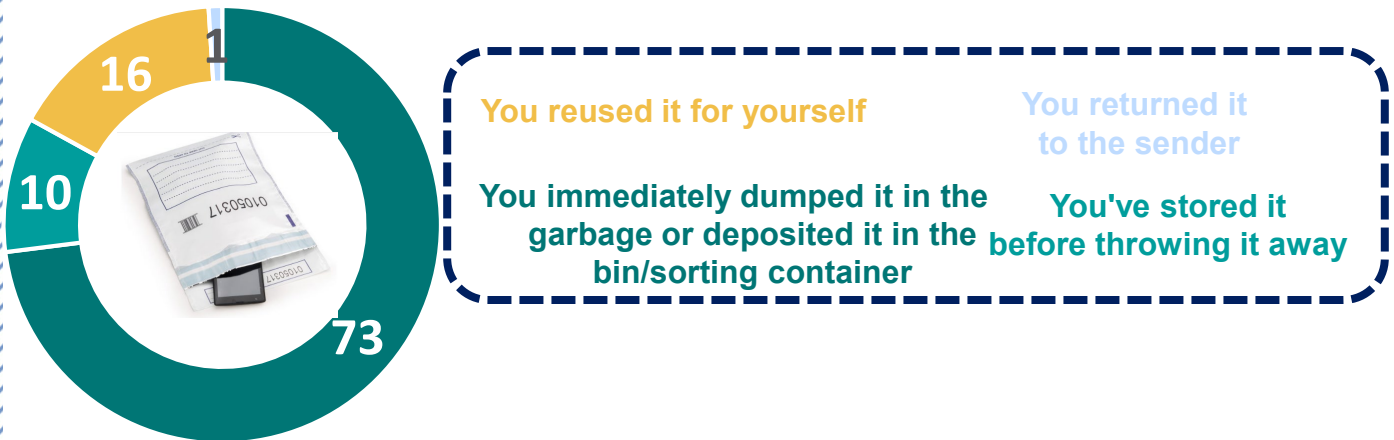
The **return tape** is often cut awkwardly:

Due to the "excitement" and speed of the opening,

- But also to the lack of visibility / reading of the instructions on the packaging,
- And finally the existing "hollow" fold in which they "slide" the scissors.

D1. The last time you received a package of this type, what did you do with it?

Base : Ceux qui ont reçu un emballage de ce type (885)



« Oh well I did not understand, I did not cut as I should've »  
(Jocelyne, Senior, House, Rennes)

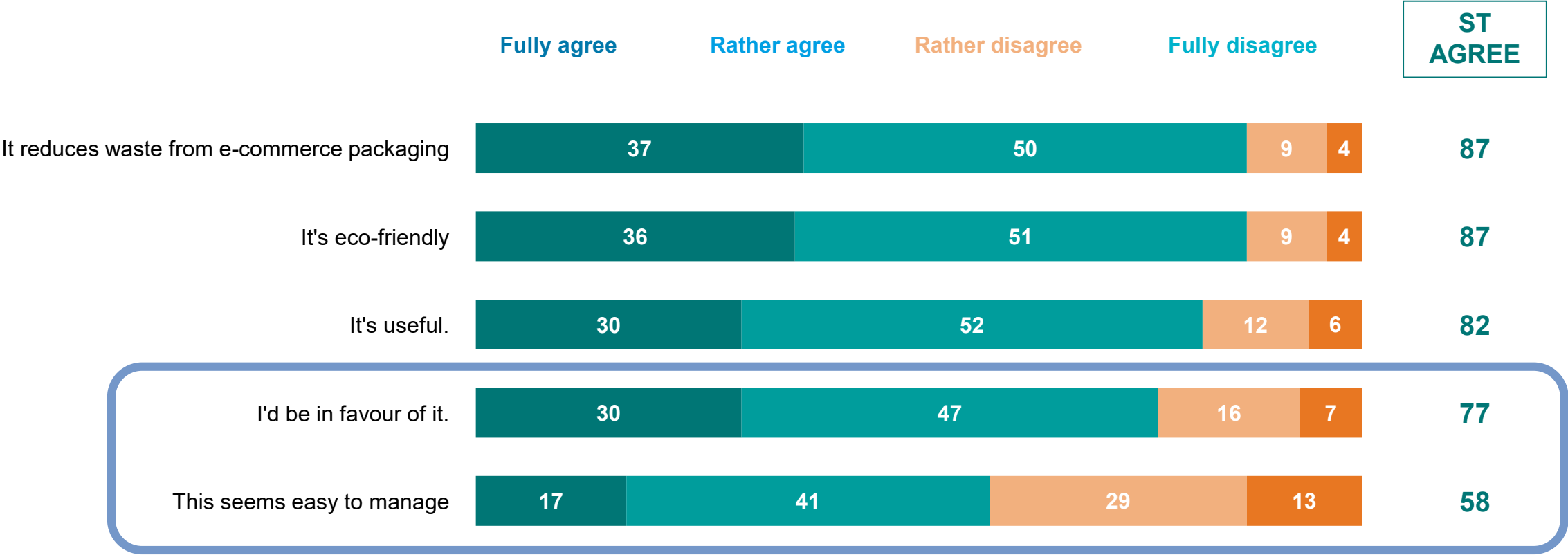


« I didn't cut it properly, it doesn't matter as I have to send it back I'll tape it down »  
(Marylène, Senior, House, IDF Arpajon)



# Returnable packaging, a possible solution but that seems to generate constraints

E1. Some internet stakeholders are considering offering a delivery with a returnable package, i.e. it would have to be re-deposited at a relay point or the delivery of the delivery could be picked up. Do you agree with the following statements regarding the consigned package :  
Base : Ensemble (2000)

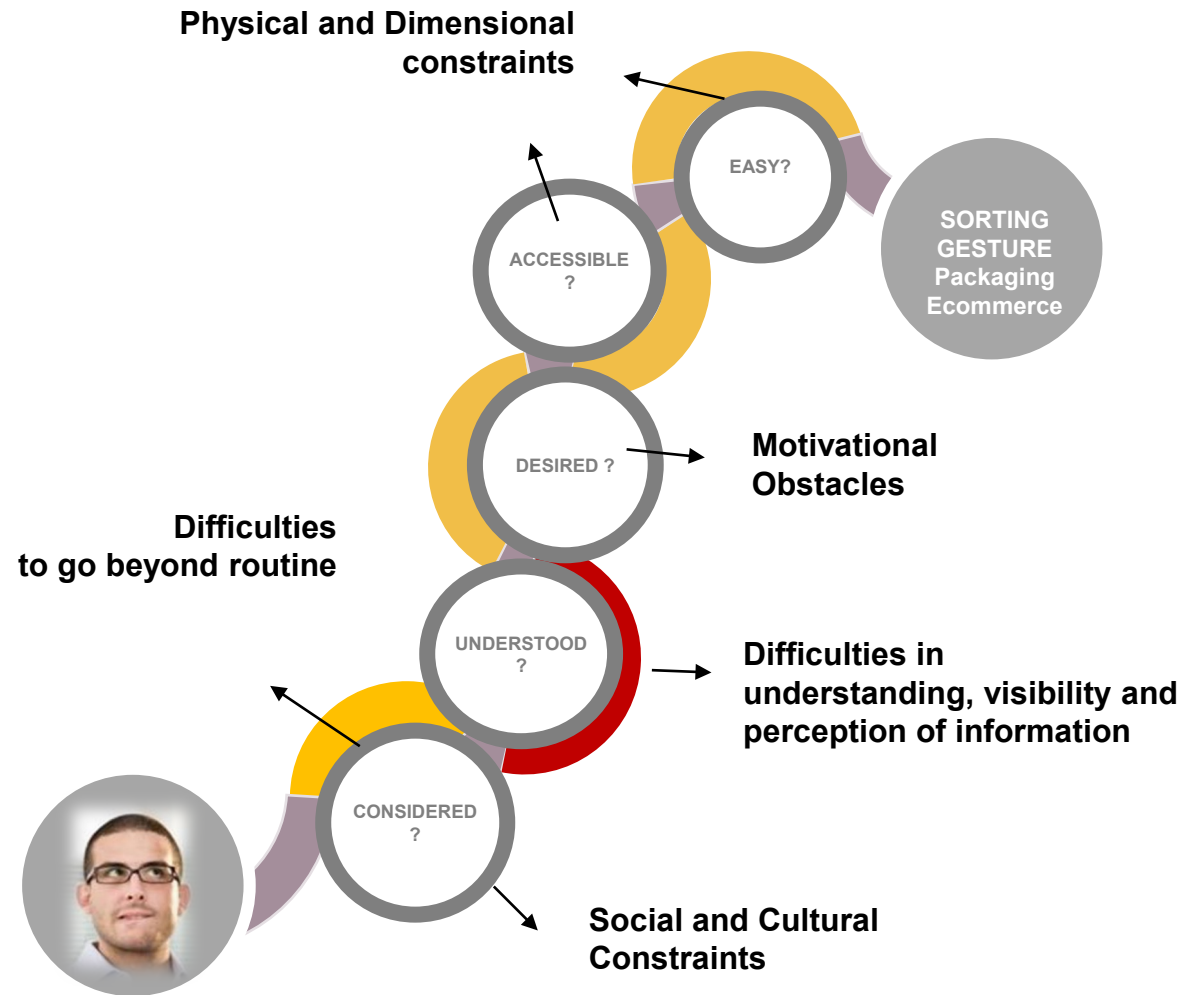


# Conclusion and opportunities





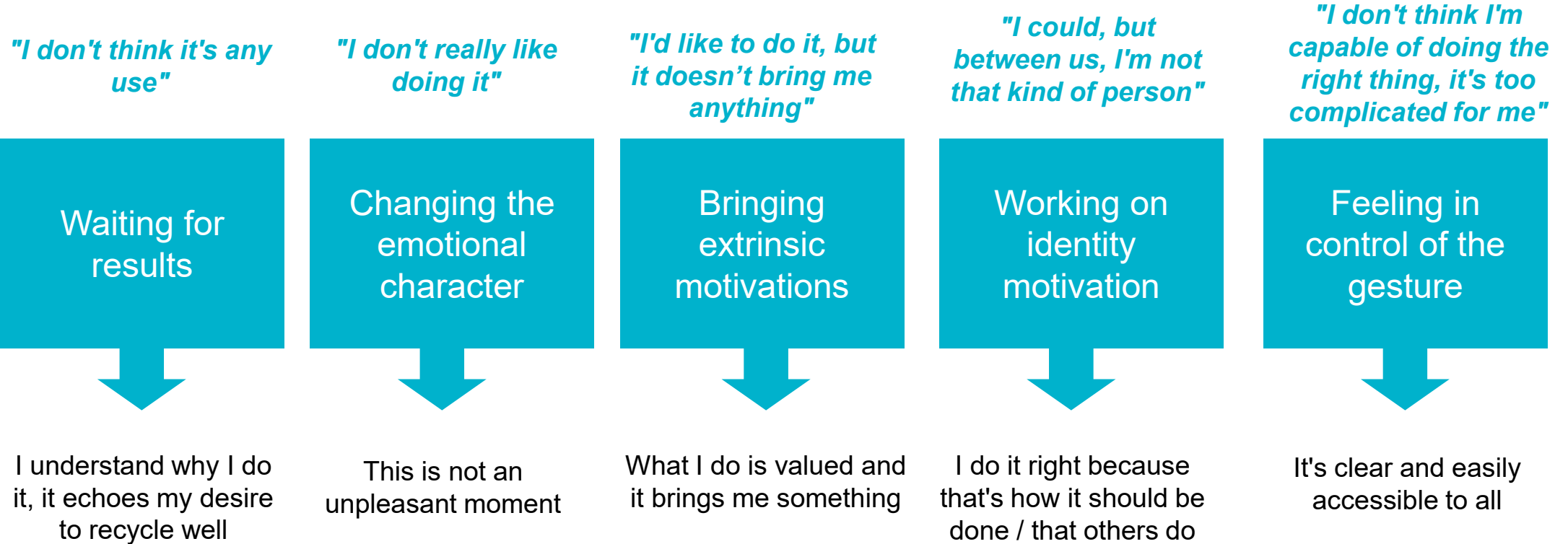
# A journey to the right sorting gesture full of pitfalls



Red= significant barrier  
Yellow = moderate barrier  
Green = no barrier

# Several levels of emotional bias

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# The 5 key lessons of the study

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1

Strong consumer expectations in terms of environmental impacts and plastic substitution

2

The opening of the package is a high time when the attention is at its maximum.  
After that, it's often too late

3

The sorting gesture in a real setting reflects bad practices because it is ungrateful and requires a consumer effort

4

Large packaging is used as a container for smaller items, resulting in sorting errors

5

1/3 of e-buyers reuse their packaging, and growing interest in re-use: packaging have several lives



Questions



Answers





# Exploring solutions



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nouvelle vie à nos produits.

GAME CHANGERS





# The main levers to activate and their stakes

**Single-material packaging  
uncompromising on product  
protection**

**Opening the package: the  
highlight of attention**

**Say-Do Gap of sorting**

**Intermediate and sorting  
container: inadequacy to be  
reduced**

**Reusing plebiscited**

# 60 ideas from creative brainstorming



ORIGAMI

1

ADAPTED  
BIN

3

60

ideas

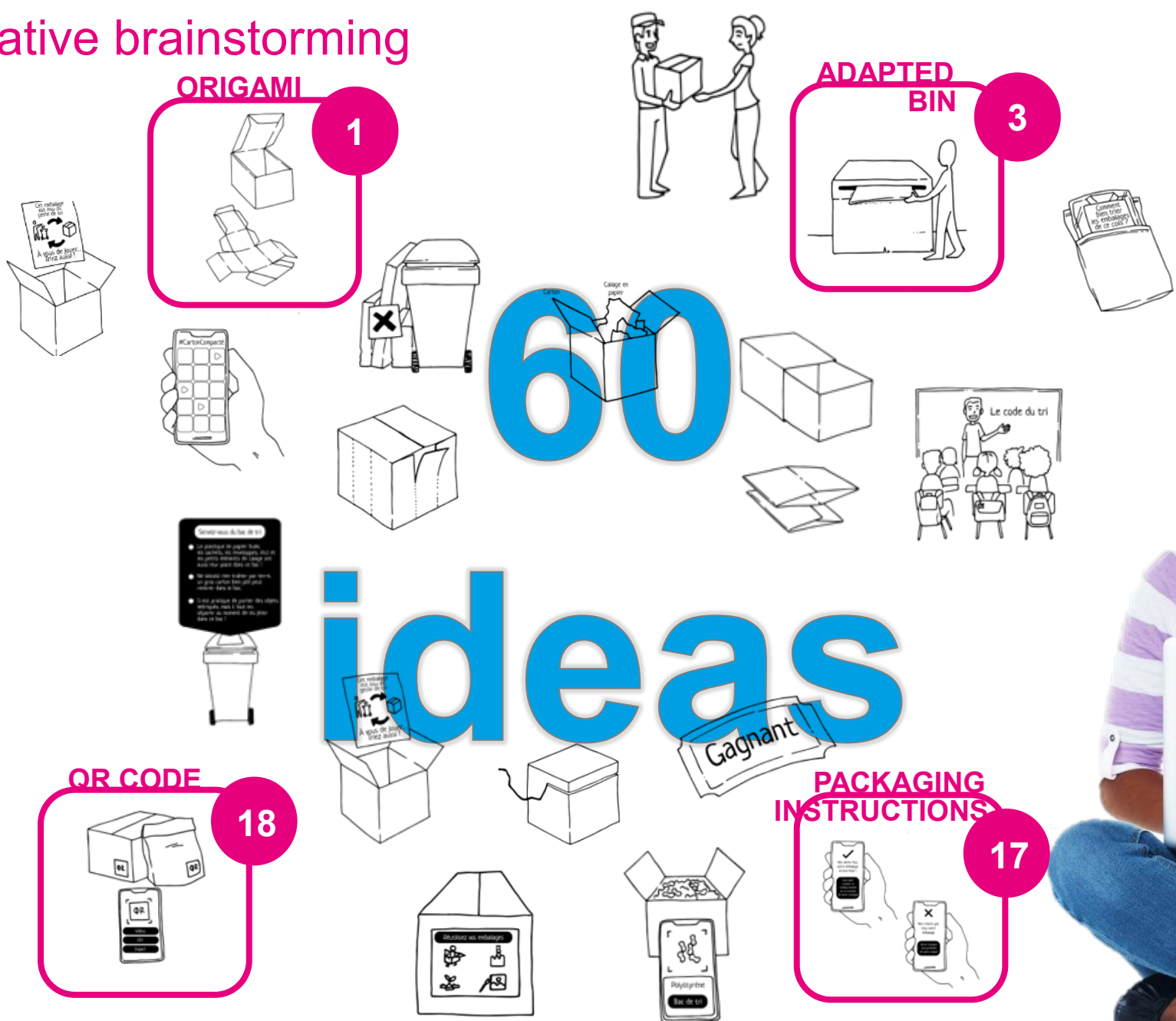
Gagnant

QR CODE

18

PACKAGING  
INSTRUCTIONS

17



# The top 5 ideas

1



**ORIGAMI**

2



**MONO MATERIAL**

3



**ADAPTED BIN**

4



**ADVICE ON REUSING**

5



**PERSONALISED INSTRUCTIONS**

## Exploration axis

Packaging

Packaging structure

Reuse

Message

Signage

Online Instructions

Collection

Packages Retrieval



# Prototyping

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**Let's experiment and prototype in a FAB LAB**







**THE PROCESS IS AS VALUABLE AS THE RESULT.**



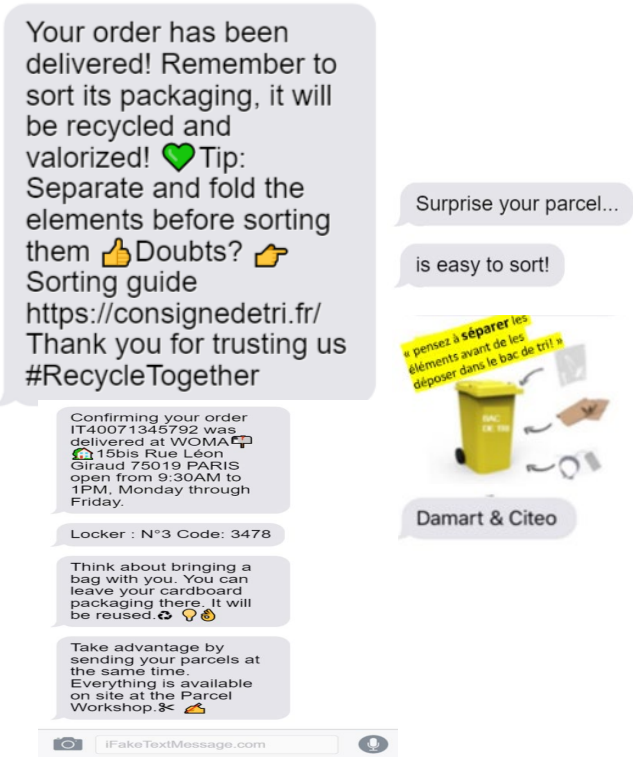
**PROTOTYPING ALLOWS YOU TO TEST  
THE RELEVANCE OF IDEAS ALMOST  
INSTANTANEOUSLY**





# Prototyping: the right message at the right time

## Personalised sorting instructions sent by SMS at delivery



## Animated sorting instructions (GIF)



## Personalized sorting instructions on invoice





# Prototyping: single-material packaging protecting the product

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The « fuzzy » envelope



Honeycomb cardboard



The gift wrap



# Prototyping: solutions that facilitate flattening

The super strip



The pull – strip 'la tirette'



The cardboards box





# Consumer testing

# From prototypes to user journeys

## Objectives

1

That e-commerce customers put all their packaging in the "sorting" bin

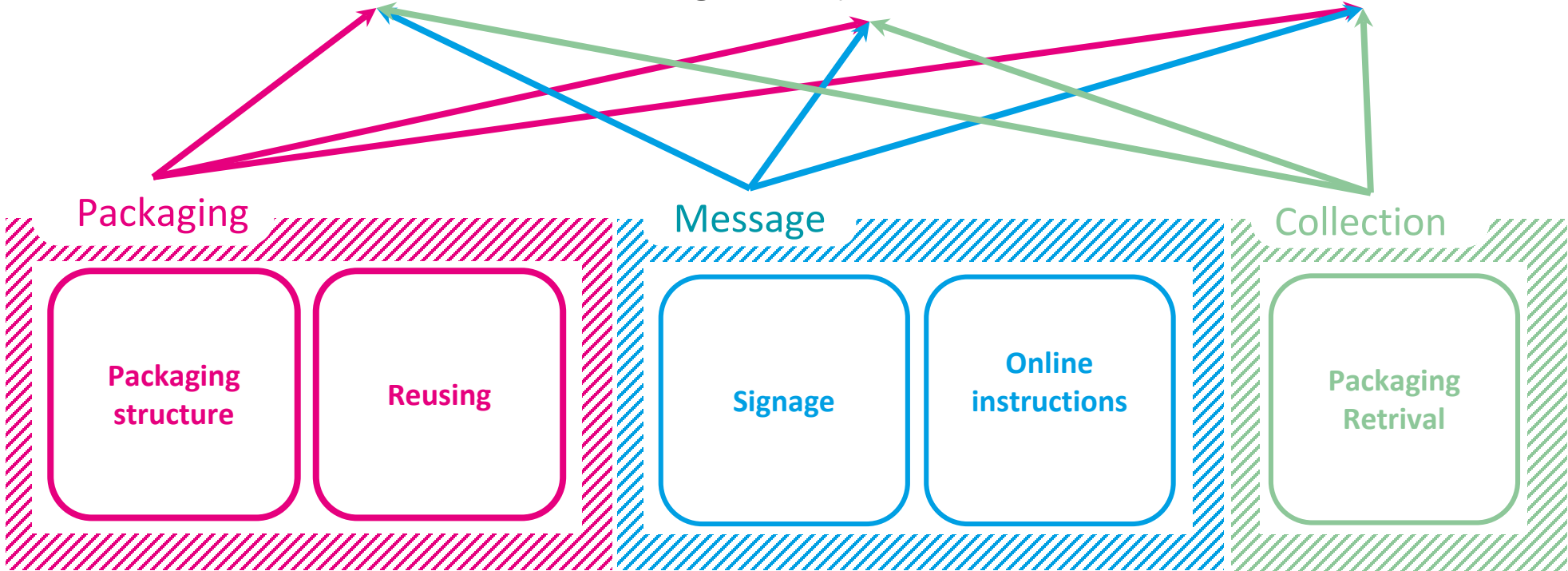
2

That e-commerce customers stop placing their packaging outside the bin (especially large cartons).

3

That e-commerce customers don't nest the packaging of different materials

## Exploration axis





# From prototypes to user journeys

## Objectives

1

That e-commerce customers put **all their packaging** in the "sorting" bin

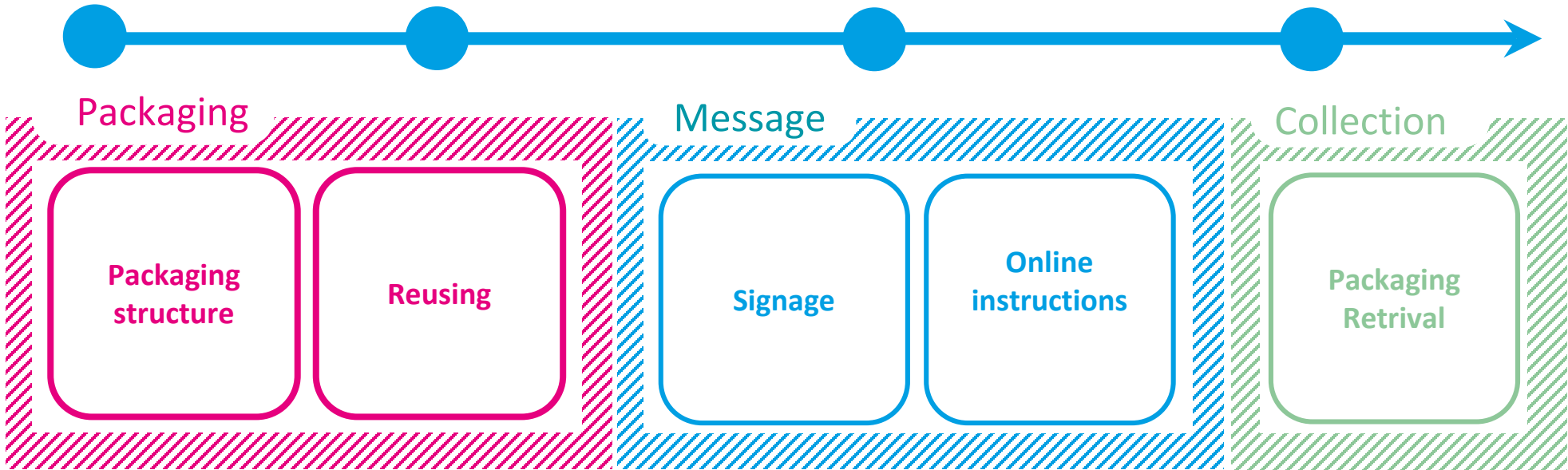
2

That e-commerce customers **stop placing their packaging outside the bin** (especially large cartons).

3

That e-commerce customers **don't nest the packaging made of different materials**

## Exploration axis



# Des prototypes aux parcours utilisateurs

## #1 Journey Enveloppe wrap



## #2 Journey Super strip



## #3 Journey The parcel workshop



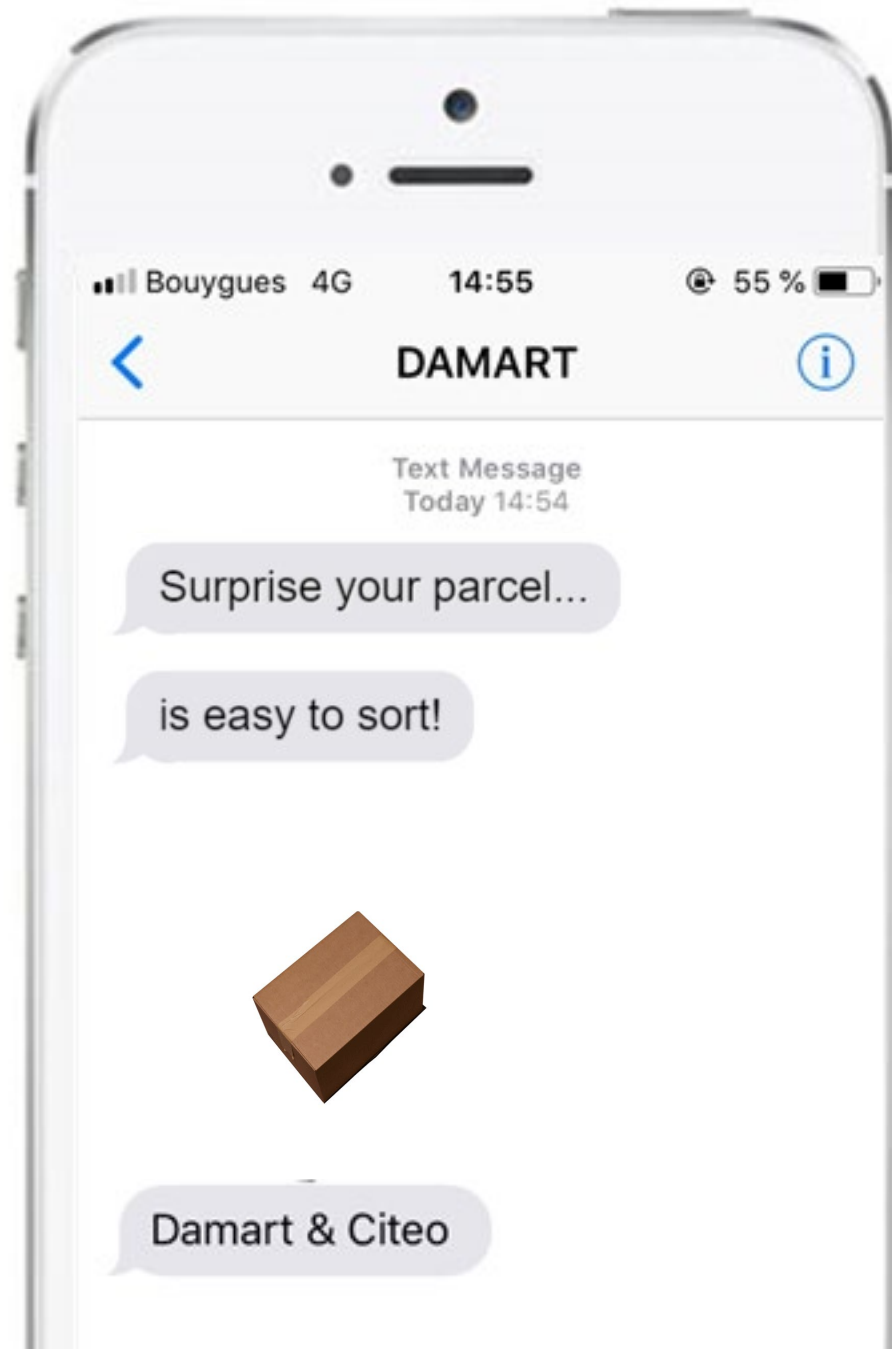
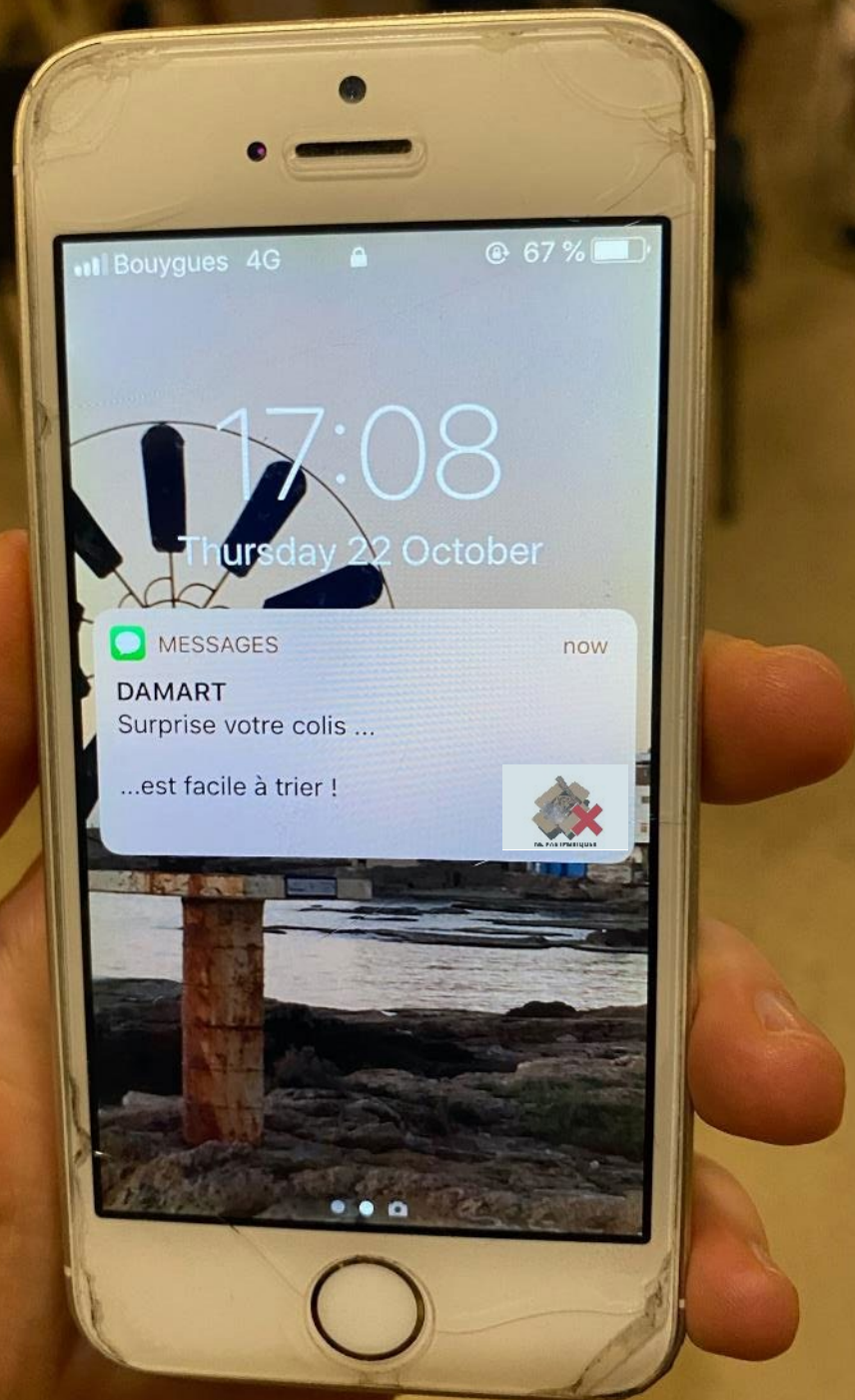
# #1 Journey enveloppe wrap

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- Pre-opening and opening sorting instructions
- Fitted and protective single-material packaging
- Easy opening
- Flattening
- Avoid nesting









2 days later













## Journey adherence rate: 89% (completely: 36%)



### Non Nesting

- 62% understand that items must be placed separately in the sorting bin

### Open Wrap = enveloppe

- Allows to bring together the elements of the same material to bring to the bin (26%)



### Mixed perception of protection

- 32% think the object will be well protected

### Primary packaging material

- If packaging the product in another material, drop in the correct answers on sorting

### Instructions

- less effective on smaller elements and different materials (32% in Residual Household Waste)
- Sorting instructions printed on internal paper wrap not consulted enough.

## #2 Journey Super Strip

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- Sorting instructions at each pre-opening step (order, confirmation, delivery, invoice)
- Easy opening bulky packaging
- Flattening easier to put in sorting bin
- Avoid nesting



< Continuer mes achats

## Mon panier



ME5344

Aspirateur CTL MIDI I CLEANTEC FESTOOL - 574832

★★★★★ (17 avis)

1 437,06 €

Vendu par **Quincaillerie-Angles**

Retirer

Mettre de côté

-

1

+

Your packaging will be bulky!

Remember to fold it and to leave nothing outside your sorting bin!



TOTAL TTC

1 437,06 €

Vous disposez d'un code promo ? Vous pourrez l'ajouter au moment du paiement.

Valider mon panier





## Good News ! Your order has been shipped

Hi,

We are happy to inform you that your order has been shipped.

Date de livraison :

28 sept. 2020

-

2 oct. 2020

Adresse de livraison :

WOMA Achats  
15bis rue Léon Giraud  
75019 Paris - France

Votre numéro de suivi : CA680071438DE

Suivre ma commande

En cas d'impossibilité de notifier ces avaries au transporteur lors de la réception, vous pourrez nous contacter via votre espace [Mes commandes](#), en cliquant sur "Assistance en ligne".

Merci de votre compréhension.

#RecycleTogether



x



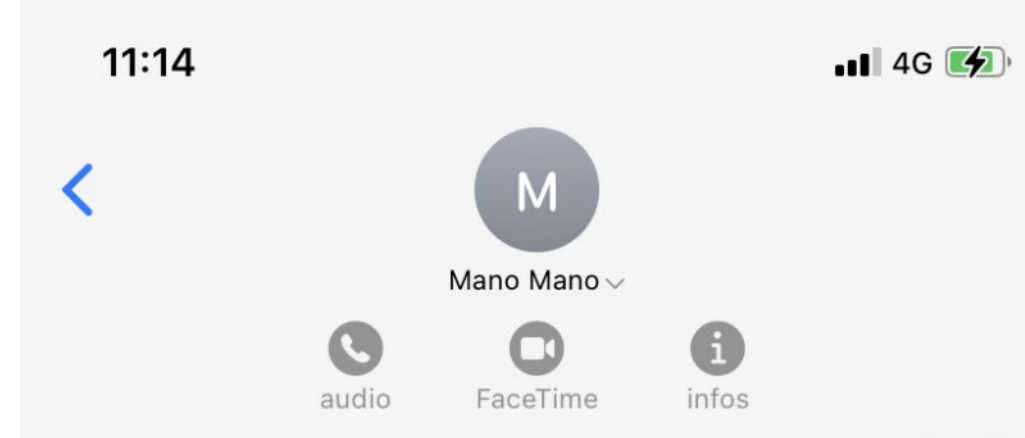
By your side to recycle 🔄  
Your order has been shipped.

**Remember to sort this packaging.** It will be recycled and valorized

1 week later







iMessage  
Aujourd'hui 11:13

Your order has been delivered! Remember to sort its packaging, it will be recycled and valorized! 💚 Tip: Separate and fold the elements before sorting them 👍 Doubts? 👉  
Sorting guide  
<https://consignedetri.fr/>  
Thank you for trusting us  
#RecycleTogether









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Monsieur Quentin Perchais  
15 Bis Rue Léon Giraud  
75019 PARIS

FRANCE

N° client : 258271  
Date : 25.09.2020  
N° de document : 2020-31263

Page : 1 de 1

**FACTURE** N° 2020-31263

Po s.	Quantit é	N° d'article	Désignation	Prix unit. € (TVA comprise)	Prix brut € (TVA comprise)
1	1 UVC	341631180	Aspirateur CTL MIDI I CLEANTEC FESTOOL - 574832		1 437€06

Poids total : 12,100

Montant net	kg ( Participation aux frais de port 6,58 € )	1437,06 €
+ 20 % TVA de 21,75 €		287,41€
<b>Montant brut</b>		<b>1724,47€</b>



### À vos cotés pour bien trier !

Votre commande vous a été livrée!  
Pensez à trier son emballage, il sera recyclé et valorisé !  
Séparez les éléments avant de les trier.  
**Astuce:** Tout se plie pour vous aider.

Un doute? le guide du tri  
<https://www.consignesdetri.fr/>

Merci de votre confiance !  
#ensembletrions













## Consumer feedbacks (*panel 1,005 people*)

**Journey adherence rate: 93% (completely: 40%)**



### **Protection**

- **93%** think the object will be well protected

### **Flattening**

- **92%** it will be convenient to deposit in the sorting bin

### **Nesting**

- **70%** understand that items must be placed separately in the sorting bin



### **Reuse**

- **22%** regret not being able to reuse the packaging

### **Sorting Instructions**

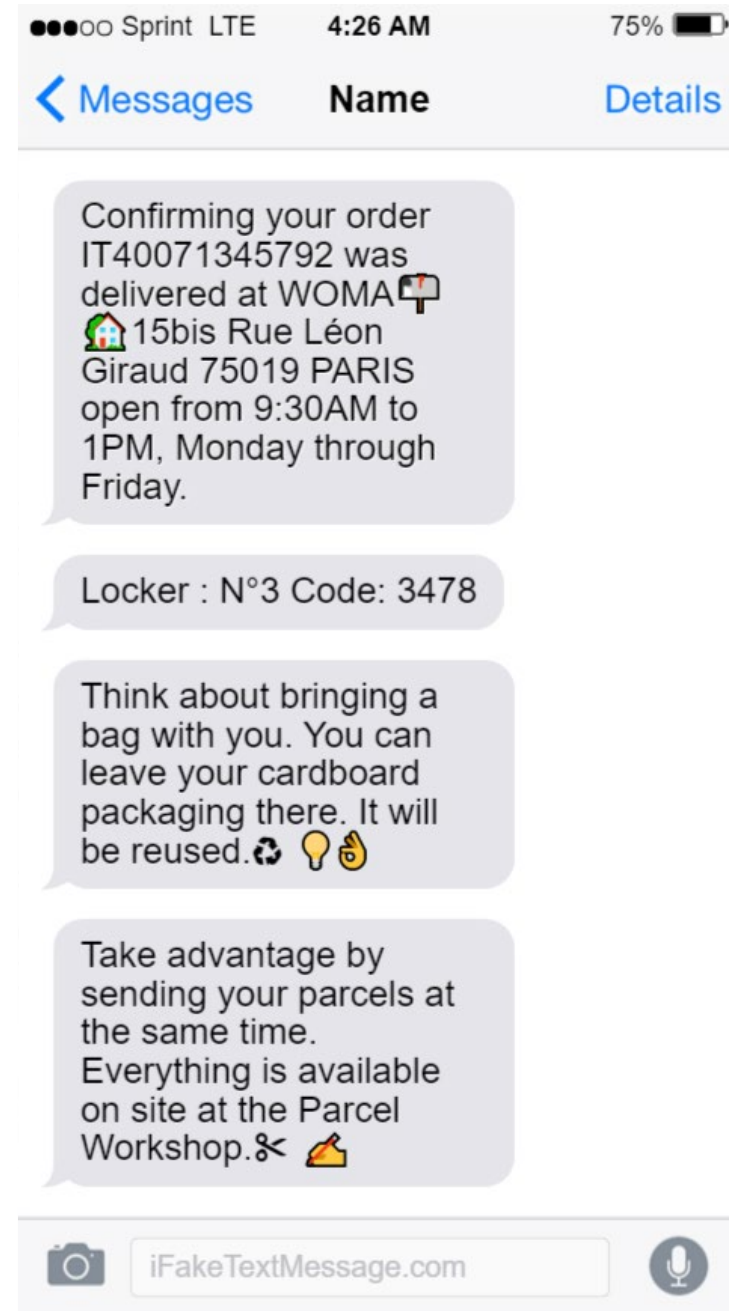
- Sorting instructions on the invoice not visible enough → little consulted.
- The GIF arrives too early in the journey, it should have been sent at the time of delivery.
- Persistence of doubts about plastic sorting



## #3 Journey parcel workshop

- Pre-opening sorting instructions
- Limit saturation internal containers and sorting
- Space suitable for large cartons
- Limiting home storage
- Making it easier to flatten
- Making it easier to reuse













# Je récupère mon colis

1

J'OUVRE MON COLIS

2

SI L'EMBALLAGE EST REUTILISABLE

Je dépose les différents éléments dans le casier vert correspondant

3

POUR LES PAPIERS, CARTONS, PLASTIQUES, NON REUTILISABLES

Je les dépose séparément dans le bac jaune

BORD Pré

JE DÉPOSE DANS LE  
En respect de cas mon



# L'ATELIER DU COLIS

## I'm picking-up my package

1

Opening my package

2

If the packaging is reusable

I deposit the different elements in the green bin

⋮

3

For the paper, plastic and cardboard that cannot be reused

I put them in the dedicated yellow bin

## I'm sending a parcel

1

I'm preparing a parcel

Using the elements left in the green bin

2

I glue my shipping slip

Printed beforehand at home

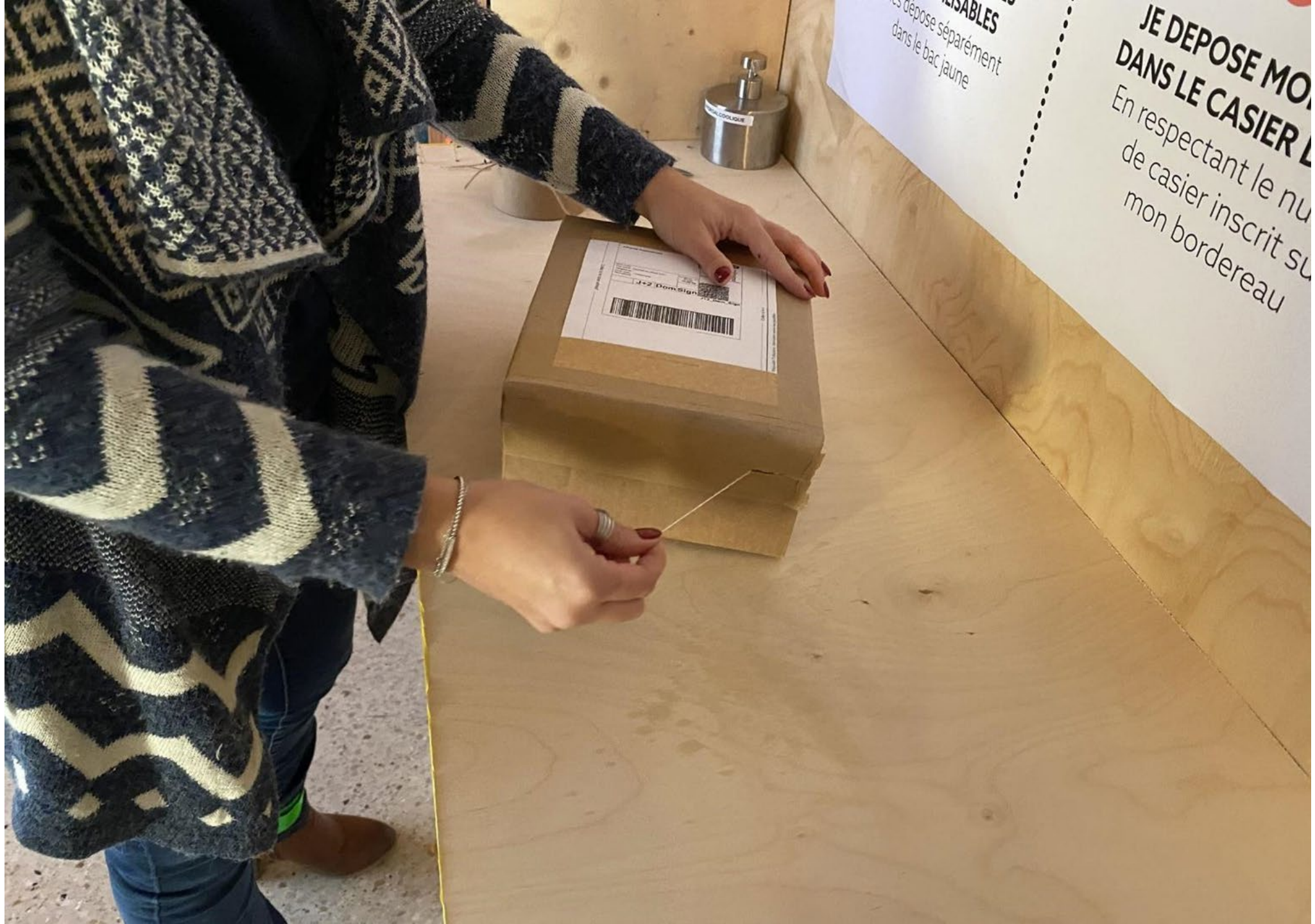
⋮

3

I leave my parcel in the « send » locker

Respecting the number on the shipping slip









1

J'OUVRE MON COLIS

2

SI L'EMBALLAGE EST  
REUTILISABLE

Je dépose les différents éléments  
dans le casier vert correspondant

3

POUR LES PAPIERS,  
CARTONS, PLASTIQUES  
NON REUTILISABLES

Je les dépose séparément  
dans le bac jaune

1

JE FAIS MON COLIS

En récupérant les  
éléments nécessaires  
dans les casiers verts

2

JE COLLE MON  
BORDEREAU D'EXPEDITION

Préalablement imprimé  
à la maison

3

JE DEPOSE MON COLIS  
DANS LE CASIER D'ENVOI

En respectant le numéro  
de casier inscrit sur  
mon bordereau







Je récupère mon colis

1

MON COLIS

J'envoie un colis

1

JE FAIS MON COLIS

En récupérant les  
éléments nécessaires  
dans les casiers verts

2

JE COLLE MON  
BORDEREAU D'EXPEDITION

Préalablement imprimé  
à la maison

MON  
CASIER D'ENV  
respectant le numéro  
de casier inscrit sur  
mon bordereau

PAPIERS  
à réutiliser





1

J'OUVRE MON COLIS

2

SI L'EMBALLAGE EST  
REUTILISABLE

Je dépose les différents éléments  
dans le casier vert correspondant.

3

POUR LES PAPIERS,  
CARTONS, PLASTIQUES  
NON REUTILISABLES

Je les dépose séparément  
dans le bac jaune.

1

JE FAIS MON COLIS

En récupérant les  
éléments nécessaires  
dans les casiers verts

2

JE COLLE MON  
BORDEREAU D'EXPEDITION

Préalablement imprimé  
à la maison

3

JE DEPOSE MON COLIS  
DANS LE CASIER D'ENVOI

En respectant le nu-  
méro de casier indiqué  
sur mon bon

WoMa

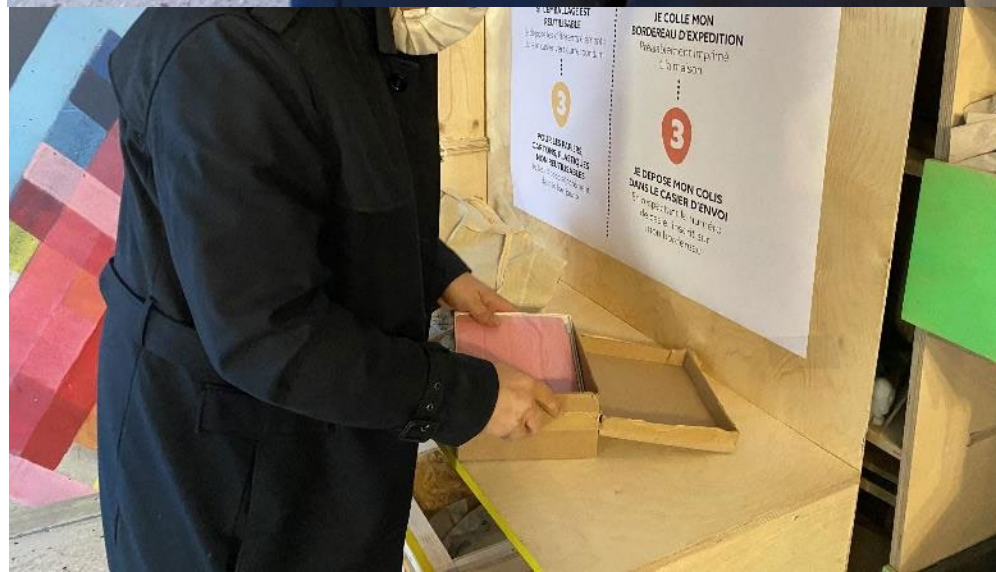
FABRIQUE DE QUARTIER

CARTONS  
à réutiliser









## Consumer feedback (*panel 1,005 people*)

**Journey adherence rate: 95% (completely: 54%)**



### **SMS**

- Clear on possibility to leave packaging at the parcel workshop (**98%**)

### **Parcel Workshop Operation**

- **97%** find instructions clear on how to operate and reuse

### **Nesting**

- **74%** understand that items must be placed separately in the sorting bin

### **Zipper**

- **60%** find the zip-puller effective for flattening, facilitating sorting and avoiding nesting



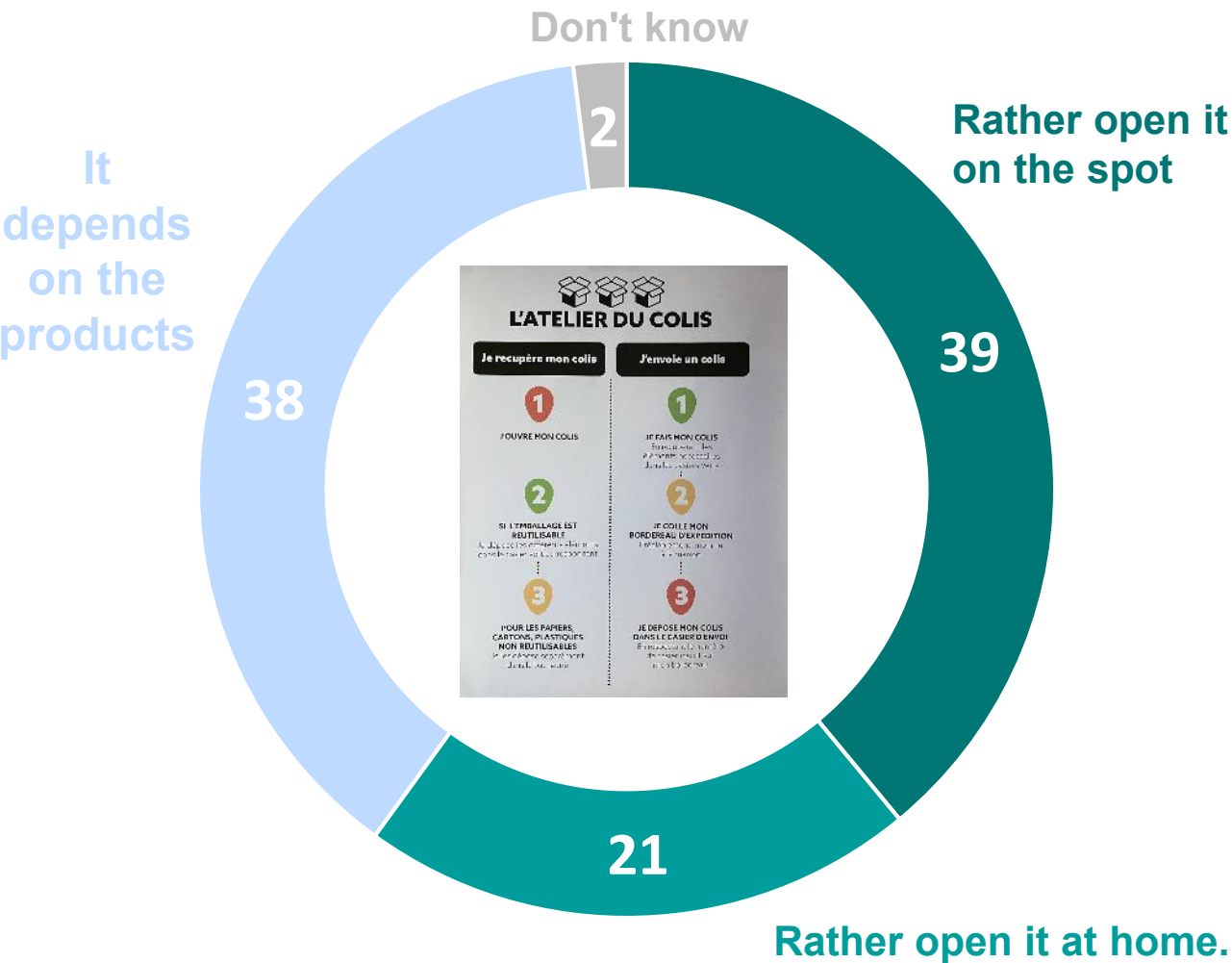
### **Zipper system**

- Inadequate zipper visibility in case of cushioning elements
- Consider a pusher on an external side



# 39% of e-commerce customers imagine opening their parcel on site

J2. If you received a package in a parcel workshop, would you say that you...  
Base : Ensemble (1005)



## A workshop that facilitates the filing of sometimes cumbersome packaging

1. Pedestrians and cyclists are very appreciating of the approach
2. Avoids deposit in the street / city bins

remains to be optimized

- The space available to leave the packaging
- The management of furniture and "misplaced" elements »
- An opening privacy zone (not visible to all)

# Conclusions

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## Flattening simplified by packaging design

- Makes storage and reutilization easier for the consumer and prevents the risk of nesting.

## The parcel workshop

- Good lever for the development of reutilization and good educational support on the right sorting gestures that the e-consumer can continue to implement at home.
- Reduces container saturation (intermediate and sorting) at home

## Sorting instruction messages

- Mail or SMS effective by relying on a moment of attention of the e-consumer (before the opening but not too early), and allow a better understanding of the sorting gesture.

## Mono-matériau

- Beware, for the consumer, the packaging from e-commerce = packages for parcels

## Think user journey and not just packaging





# Thank you!