

Agile and Reliable Design Decisions based on the Perception of the Target Audience

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I love developing and applying **UX methodologies** to continually learn about people's needs together with them. And furthermore, I love making their lives easier, applying my knowledge in the development of new products and services aimed at them, focus on what really matters. I am convinced that including them at the center of the innovation process from the beginning is the right way to **generate a positive and significant impact on society**. This is the **purpose** of the IBV area I lead.

I am **associate professor** of the UX subject of the Master in Clinical Biomechanical Assessment (IBV-UPV).

I am a **doctoral student** at the UPV. My thesis is about the development and validation of a **design optimization methodology** based on analysis of people's perception through natural language processing.

“People Driven Innovation”





... to achieve
satisfaction of
people ✨

A misty forest scene with trees displaying vibrant autumn foliage in shades of orange, red, and yellow. A path leads into the distance, and the overall atmosphere is serene and slightly melancholic. The text "It is not an *easy* road ..." is overlaid in the center.

It is not an *easy* road ...

→ The companies
fall in love with
their ideas♥






**They rely on their
intuition, their
tastes, data from
the past, imitation...**

**Most decisions are
made in internal group
sessions with a high
subjective
component**



A man with glasses and a black shirt is smiling in the background. A woman with a bun and a plaid shirt is leaning over a laptop in the foreground, also smiling. The scene is set in a bright, modern office with wooden shelves and plants in the background.

**The team is *delighted*
with the solution ★**

A photograph of two women sitting at a wooden table in a meeting. The woman on the left, wearing a teal top and glasses, is smiling and looking towards the other woman. The woman on the right, wearing a dark blue top, is looking at a laptop. A Dell laptop is open on the table. The background is a brick wall.

**They use user testing
in the final stage of
development to
confirm their
hypotheses ✓**

A young boy with dark, wavy hair is sitting at a wooden desk. He is wearing a blue t-shirt and has his head resting on his right hand, looking down at a laptop. The laptop is open, and a yellow pencil is lying on the desk next to it. In the background, there is a window with white blinds. A semi-transparent blue box with white text is overlaid on the image.

However, they do not
generate the *experience* they
had hoped for ⚠



GLASS



76% of new launches
fail in their first year
of life

(Nielsen)

► The *reality* of companies ◀

⚠ Not all companies can afford to have the time, the resources and the knowledge to apply user research methodologies.

IBV has more than 40 years of helping companies to develop *designs adapted to people's needs*.

waumap is a user-centered design methodological tool that allow companies to make *objective and reliable* decisions in early phases of the product development process, replacing the most frequent approaches of decision-making based on intuition.

This tool utilizes AI to analyze consumer perceptions of various design alternatives in a *standardized, agile, and autonomous* manner.

DESIGN VALIDATION

Test your designs in 3 steps

Upload images of your designs and select the questions you want to ask. Establish who you would like to assess your designs and you're all set!



AB Test: Compare two designs amongst 50 users.

Discover which they prefer, their opinion and the emotions they generate.

[Start](#)[Learn more](#)

AB Test Eye Tracking - Compare two designs with gaze analysis amongst 50 users.

Discover what attracts their attention, which they prefer, their opinion and the emotions they generate.

[Start](#)[Learn more](#)

Product panel: compare a number of designs.

Discover what attracts their attention, preferences ranking, their opinion and the emotions they generate.

[Start](#)[Learn more](#)

Test 'unboxing'.

Send the product to potential customers, discover its use and possible improvements. First impressions? Does it have the WAU effect?

[Start](#)[Learn more](#)

All of the tests you create are saved for your reference.

[See my tests](#)

1: Set up the test

The company uploads its proposals and configures the test, choosing the questions that wants to ask from a battery of questions and introducing images of the design proposals that wants to analyse. They can share the test with their own clients or launch it to a panel of testers previously profiled by the company (age, gender, purchasing power, nationality and so on).



DESIGN VALIDATION

A-B Test: Comparing two designs

Discover which design they prefer, what emotions they generate and why.

STEPS

- 1 Designs
- 2 Survey
- 3 Confirmation
- 4 Send test

| *Title of test*

Write the type of design to be assessed in no more than five words

? Type of design

Designs

CONTENT

You can upload image files (png, jpg, jpeg) with suitable dimensions (minimum 500x500 pixels). Both images must be comparable (e.g. same range or category) and their proportions must be similar (do not choose a horizontal image and a vertical image).



Upload content

DESIGN VALIDATION

A-B Test: Comparing two designs

Discover which design they prefer, what emotions they generate and why.

STEPS

- 1 Designs
- 2 Survey
- 3 Confirmation
- 4 Send test

Restaurant commercial

Survey

QUESTIONS

You can choose from the 4 suggested questions or select others from the list below 'additional questions'.

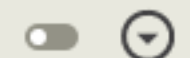
1

Overall, how much do you like it?



2

How original do you find it?



3

To what extent do you think it meets your needs?



4

Based on the information we have shown you, how likely are you to buy it?



DESIGN VALIDATION

A-B Test: Comparing two designs

Discover which design they prefer, what emotions they generate and why.

STEPS

- 1 Designs
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- 3 Confirmation
- 4 Send test

Restaurant commercial

Preview of your test

TEST SECTIONS

These are the sections the user will navigate through when completing the test

TO BE ASSESSED



A



B



DESIGN VALIDATION

A-B Test: Comparing two designs

Discover which design they prefer, what emotions they generate and why.

STEPS

- 1 Designs
- 2 Survey
- 3 Confirmation
- 4 Send test

Restaurant commercial

Send test

USERS

Choose how you wish to send the test to the users.

- ☐ I will send the test to the users myself.
- ☒ I want Waumap to send the test to a user panel.

CHARACTERISTICS

Choose from amongst the available categories to form you survey audience.



Country/Region



Gender



Age



Annual income

2: Potential users perform the online test

Potential users access the online test that has been created and their perception is recorded when viewing different designs that the company has introduced. They will have their webcam connected so that waumap can obtain their visual strategy and thus identify the points they notice most in the images shown, and their microphone to express their opinion in a natural way.




Comparison of Product test




Instructions for calibration


You are now going to calibrate your camera and we want to help you to get in the right position. Try to align your face with the on-screen silhouette. Once it is aligned, click 'Next' to continue.

Please note: to ensure that both the calibration and stimulus viewing work properly, *you should remain in this position as much as possible.*













What **to** do

 [Eye](#) movement



What **NOT** to do

[Previous](#)[Next](#)

COMPARISON OF TWO DESIGNS: TEST A-B

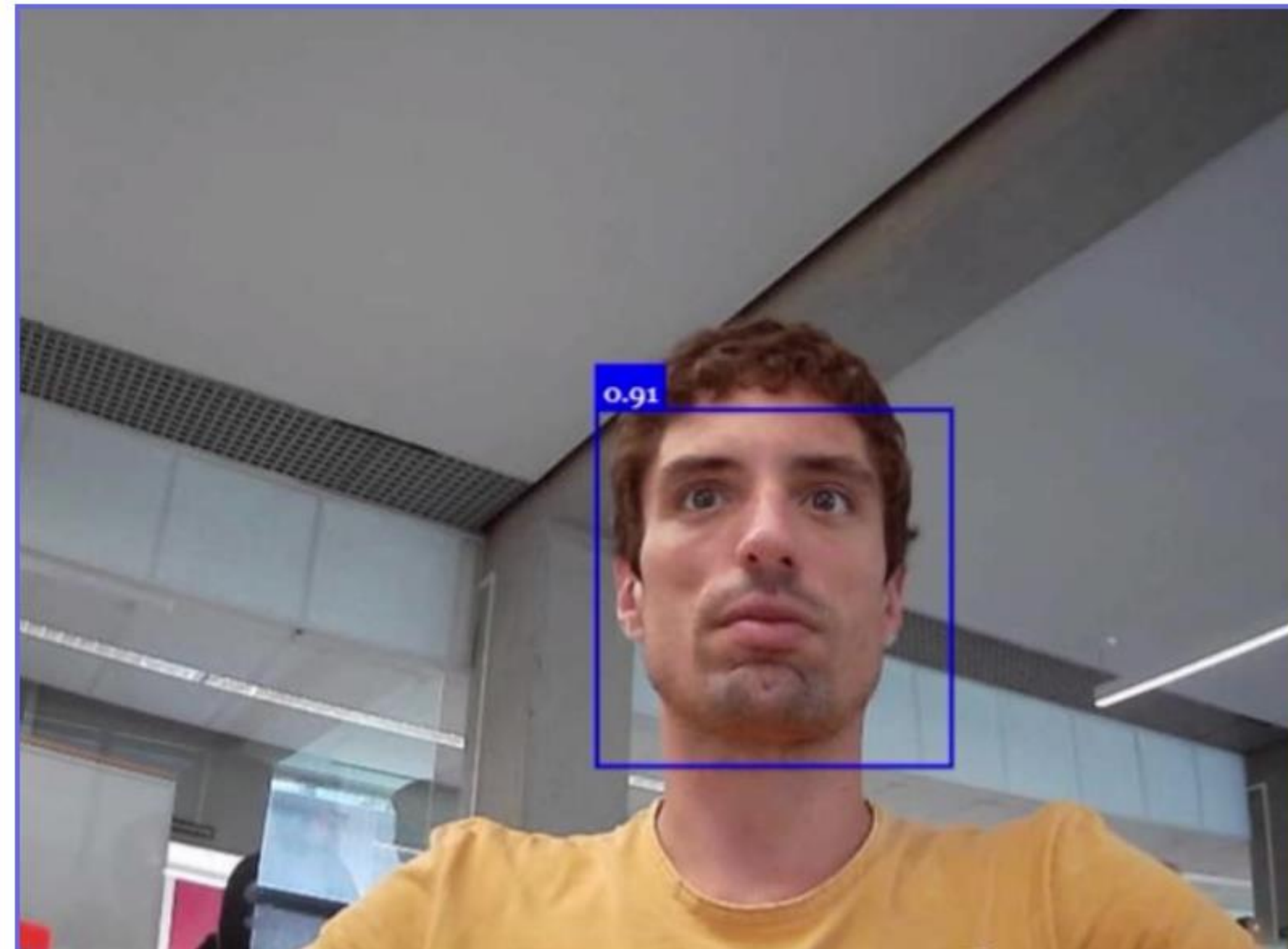
Comparison of Pasta dish aesthetics

Pasta dish aesthetics A

Please follow the instructions below your recording to access the calibration and image viewing. To ensure that your gaze is recorded properly, follow the guidelines during the visual scan:

1. Firstly, a logo will move around the screen. You should follow it with your gaze.
2. You will then see an image and will be given 15 seconds to look at it.
3. The logo will then appear again and you will have to again follow it with your gaze.

Press F11 to view it in full screen; then press 'Next'.



PROGRESS

- 1 Stimulus A
- 2 Survey A
- 3 Stimulus B
- 4 Survey B
- 5 Compare
- 6 Selection

Next

Instructions

Correct position!

COMPARISON OF TWO DESIGNS: TEST A-B

Comparison of Pasta dish aesthetics

Pasta dish aesthetics A

FIRST OPINION

Freely express your first impressions of the design.



YOUR VOICE FEEDBACK

Press the microphone button to start recording. Record each sentence as a single audio of no more than 7 seconds. You can record as many audio files as you like. USE SHORT, SIMPLE SENTENCES.



Feedback 1



Audio successfully recorded. *You can record as many audio files as you like.*

PROGRESS

- 1 Stimulus A
- 2 Survey A
- 3 Stimulus B
- 4 Survey B
- 5 Compare
- 6 Selection

Next

3: See results in less than a week

Within a few days and automatically, the company will be able to see how users have interacted with the design proposals shown.

It will obtain information on the perception of the stimuli shown, the points on which potential customers focus the most, feelings generated and texts with their opinion, reasons for preference/rejection, etc.



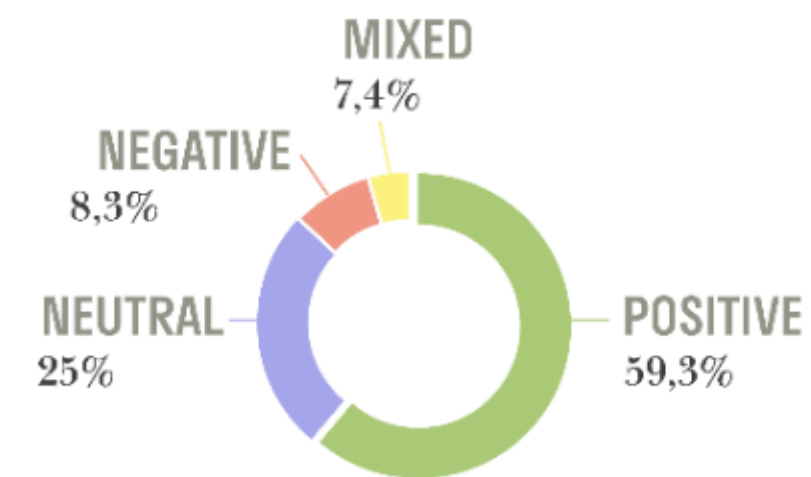
► How is *information* extracted and analyzed?◀



Areas of attention

Gaze tracking is obtained using non-invasive Eye Tracking technology, via webcam.

Data analysis carried out with IBV's own programming using OpenCV Models to obtain areas of greatest visual attention.



Sentiments

Information is obtained by recording open opinions collected in different formats: text or audio.

Automated analysis of the freely expressed information carried out in two phases using:

1. Audio transcription algorithms (Amazon Transcribe) and natural language processing algorithms -PNL- (Amazon Comprehend).
2. Opinion polarity algorithms (Amazon Comprehend).

- Likes → 71%
- Willing to buy → 67%
- Covers needs → 55%
- Appealing product → 70%
- Chooses as favorite → 75%
- Discards as favorite → 25%

Key values

The information is obtained by means of a closed survey with 4 questions selected by company together with a final question prioritising the stimulus selected as favourite.

Survey results treated quantitatively to show the total percentage of participants with responses classified as positive grouped in Top 2 Box value (sum of the 2 most positive values of the 5 possible response options of each indicator valued by stimulus).

In addition, the percentage of participants selecting and discarding each stimulus as a favourite is included.



Reasons for selection

Information is obtained by recording open opinions collected in different formats: text or audio.

Automated analysis of the freely expressed information using audio transcription algorithms (Amazon Transcribe) and natural language processing algorithms (Amazon Comprehend).

Data visualisation using IBV's own programming to generate word clouds based on the frequency of mentions.

First impressions? How do they assess each stimulus?

75 users

55% women

45% men

■ Usual users →
usual clients of Italian
restaurants

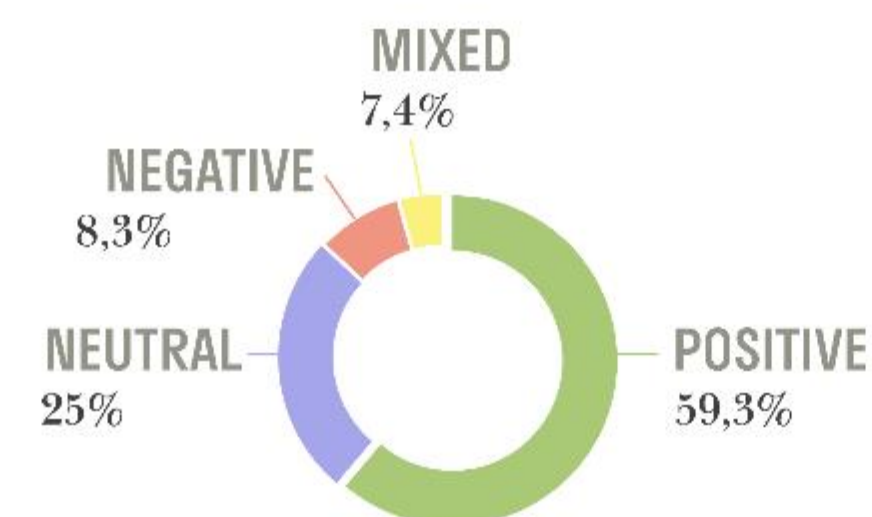
Living in Valencia

AREAS OF ATTENTION

Stimulus A



EMOTIONS



KEY FACTORS

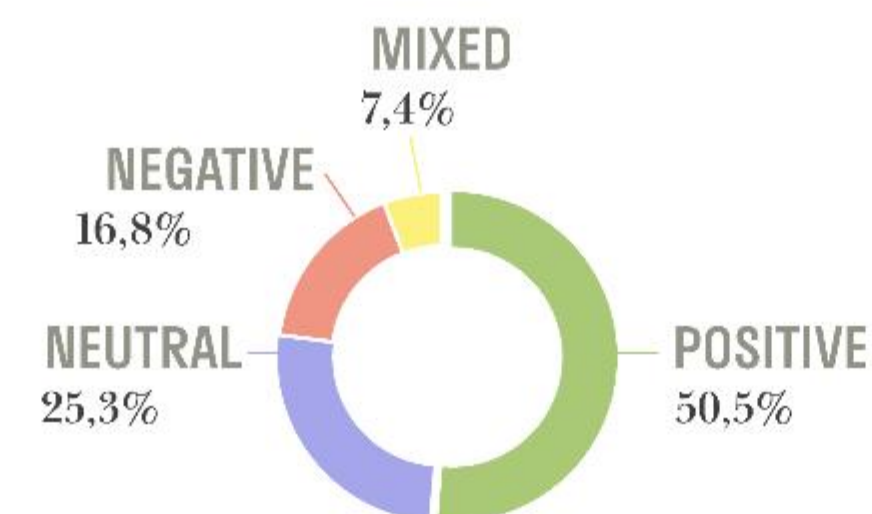
- Likes → 71%
- Willing to buy → 67%
- Covers needs → 55%
- Appealing product → 70%
- Chooses as favorite → 75%
- Discards as favorite → 25%

REASONS FOR CHOICE AND DISCARD

75% Reasons
for being
favorite

basil
tomato spaghetti
nice light appetizing
healthy colors simplicity
quality appealing sauce
pieces natural cheese parmesan
fresh quick

Stimulus B



- Likes → 50%
- Willing to buy → 32%
- Covers needs → 50%
- Appealing product → 45%
- Chooses as favorite → 25%
- Discards as favorite → 75%

75% Reasons for
being
discarded

herbs
tomato pasta
red dry peppers
healthy quantity heavy ugly
pieces artificial no sauce
paprika cheese parmesan
not traditional chunks

► Use Cases of waumap ◀

Food and Personal Hygiene



SPB

Furniture and Ceramics

Royo®



esmalglass·itaca
grupo

peronda

Clothing and Footwear



Audiovisual



Tourism



► Results of the **waumap** use cases ◀

<i>Hypothesis</i>	<i>Experiment results</i>
<i>The Waumap results are useful for its decision making</i>	<i>True. > 60% affirmed that waumap results are credible and clear for its decision making.</i>
<i>Waumap tests help the company in its decision-making processes</i>	<i>True. > 60% named design problems of their company to test with waumap.</i>
<i>Companies have adequate material to evaluate different designs</i>	<i>True. >60% provided stimuli of a design problem relevant to their company</i>
<i>Waumap fits into the company's daily tasks</i>	<i>True > 60% completed the configuration process of a Waumap test and valued its ease of use.</i>

A sample of 75 users is enough to detect substantial differentials ***exceeding 30% in preference*** among design alternatives.

► What is the *user experience* with waumap? ◀

All users (270) would participate again in future online tests using the waumap tool.

72%  *selected to express free opinion with TEXT*

28%  *selected to express free opinion with AUDIO*

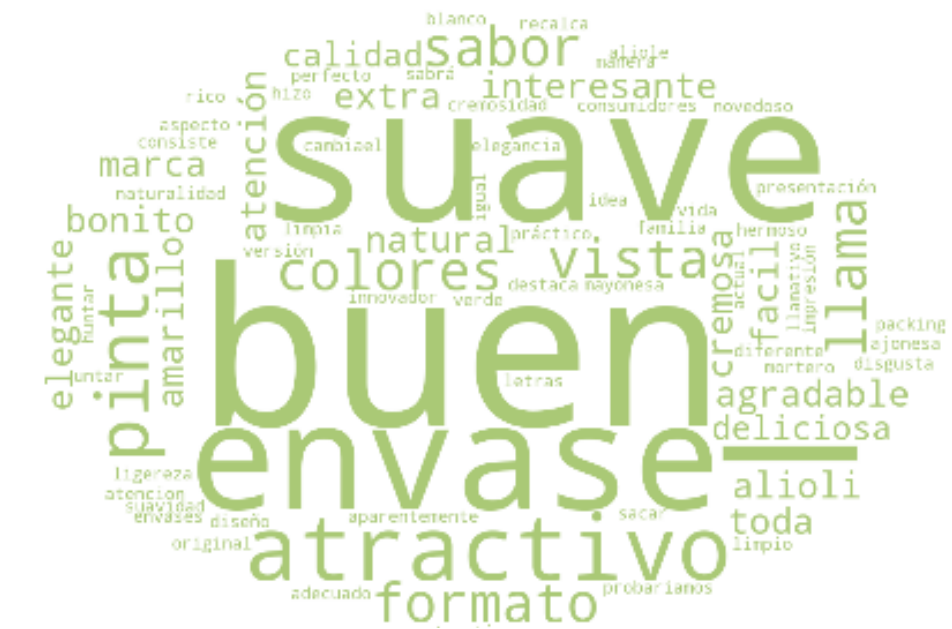
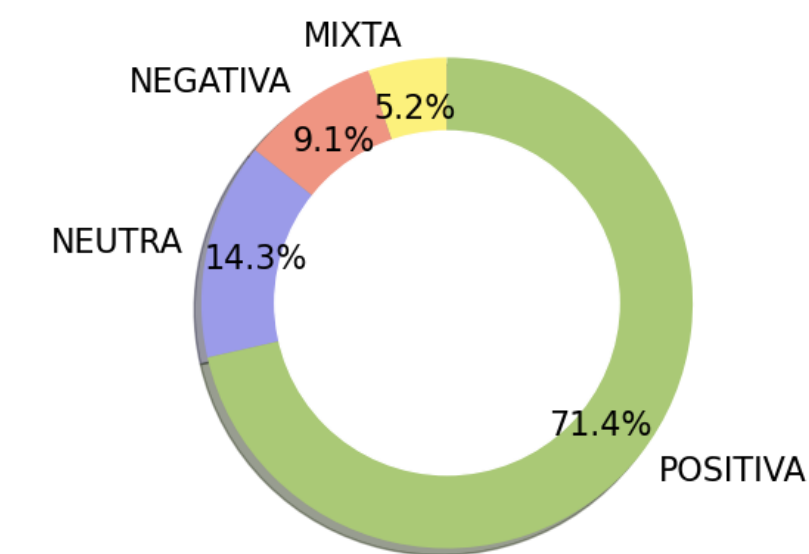
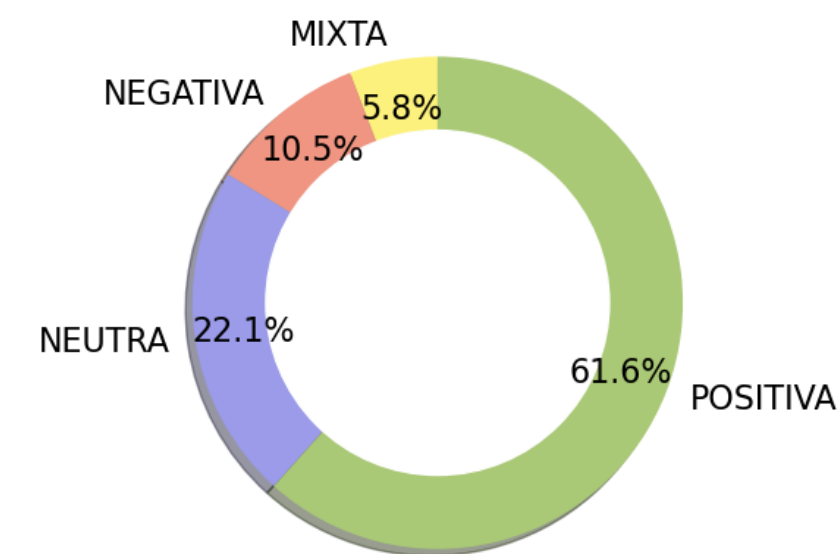
Users had a satisfactory experience with waumap (>8.5 out of 10).

"A cool experience. The platform is intuitive and easy to use. Completing the test was really easy, simple and quick, and it was short too." Maria

"It was more convenient and quicker than your regular survey." Isabel

► Robustness of waumap ◀

The perception results of a sauce packaging, assessed in two different Waumap tests with *different samples of users and in different time periods* were compared .



First impressions expressed naturally extracted by natural language processing algorithms were ***similar: polarity of the sentiments and word clouds.***

► Reliability of waumap ◀

A comparative analysis of the results obtained through a *Waumap test* and through a classic market research study (two *focus groups*) was carried out.



The results obtained with both tests were identical, obtaining the *same design as a favorite* and the *same reasons* for choice and discard.

► Advantages of waumap ◀

<i>Waumap Test</i>	<i>2 focus groups</i>
<i>N=75 users</i>	<i>N=14 users</i>
<i>Reporting deadline: 3 days</i>	<i>Reporting deadline: 3 weeks</i>
<i>Staff hours: 2,5 hours</i>	<i>Staff hours: 45 hours</i>
<i>User gratification cost: 225 euros</i>	<i>User gratification cost: 420 euros</i>

The Waumap results are obtained in a much ***more agile, simple and economical way.***

► How can **waumap** help companies? ◀

1. It ***focuses efforts on satisfying customers***, seeking to maximize their emotional perception of a given solution, knowing the reasons for this perception.
2. It ***optimizes the decision-making process*** when designing new products and services, as it allows robust tests to be carried out with a significant sample of potential customers from all over the world in ***just a few days***, thanks to Artificial Intelligence.
3. It ***reduces the costs*** involved in having the voice of potential customers with classical methodologies, thanks to the digitalization of People Driven Innovation methodologies.

► Future work ◀

- Including *more than two design alternatives* in the Waumap test.
- Exploring sentiment analysis by also analyzing *tone of voice*.
- Obtaining and validating a *preference prediction model* based on sentiment polarity, when more data is obtained with future use cases.

FOCUS

On what **matters**

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Try **waumap**

<https://waumap.ibv.org>