

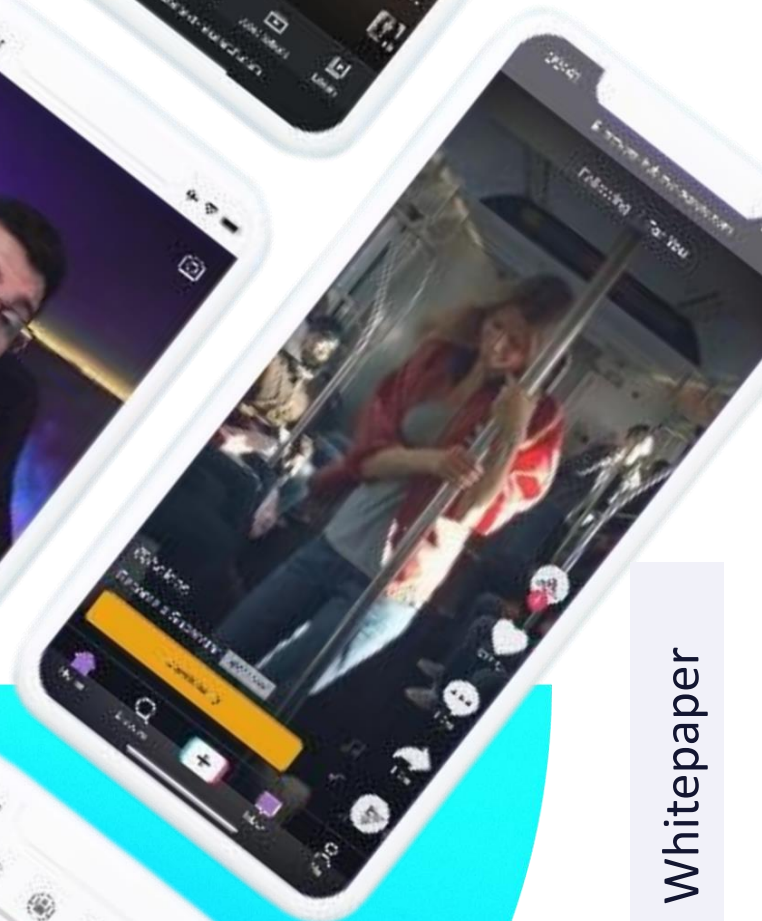
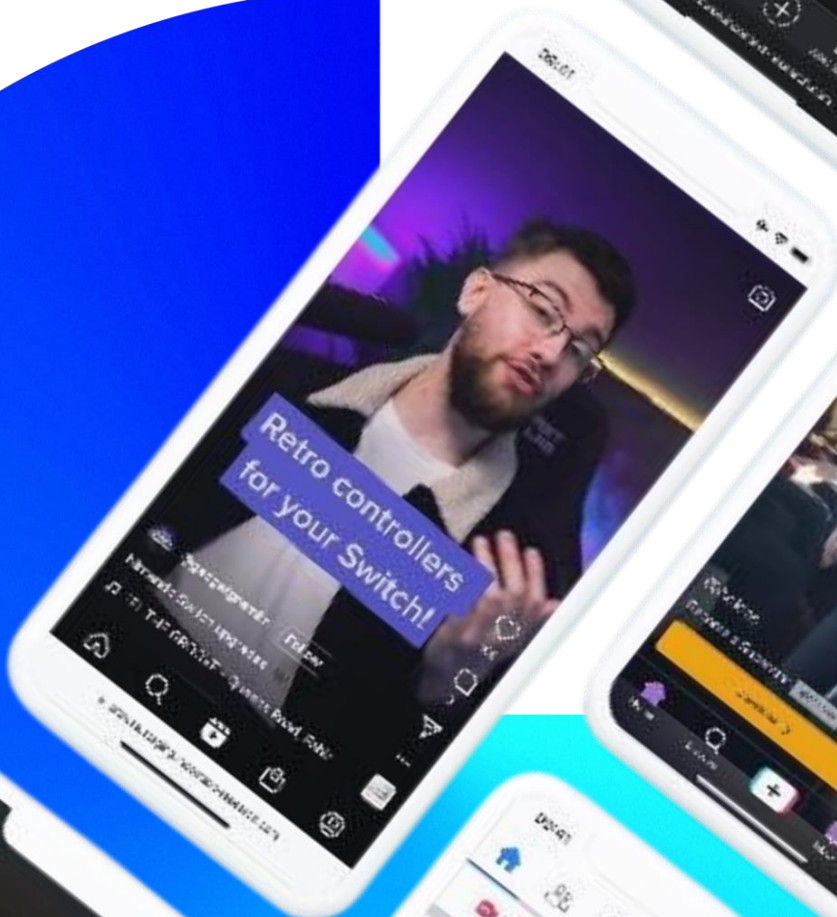
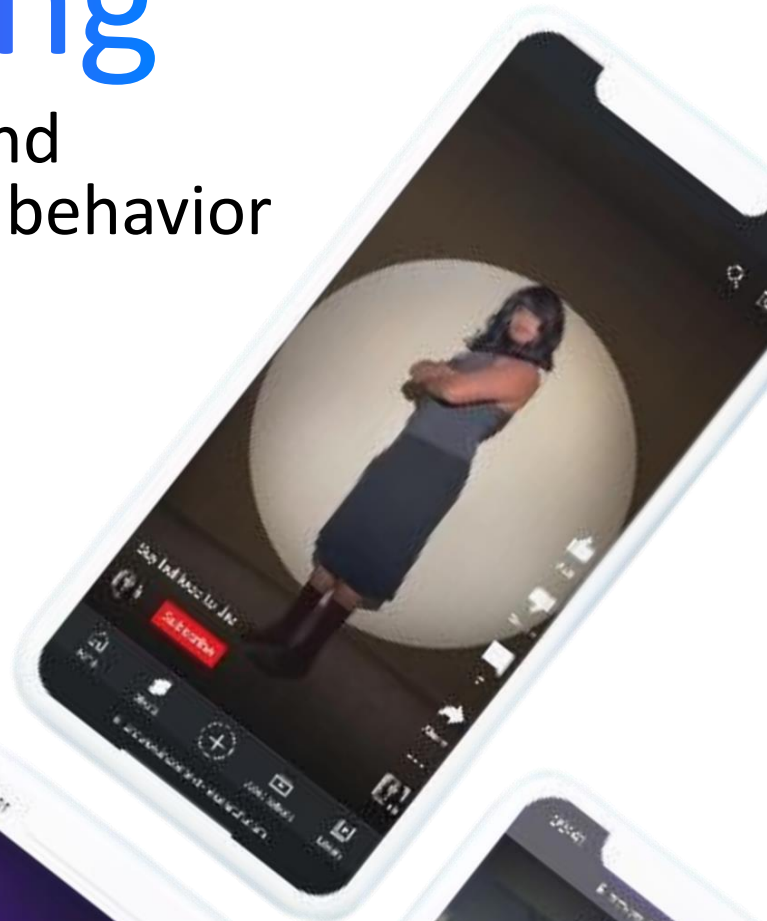


eye square

In Context Eye Tracking

The power to understand
human experience and behavior

How natural digital environments
and our [advanced SEAL \(smart eye tracking algorithm\)](#) provide unique
insights into human attention and
consumer behavior.



2025

Whitepaper

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Learn more about the **capabilities** of eye square's browser-based InContext Eye Tracking technology. Explore its **applications** in social media testing and ad performance analysis.



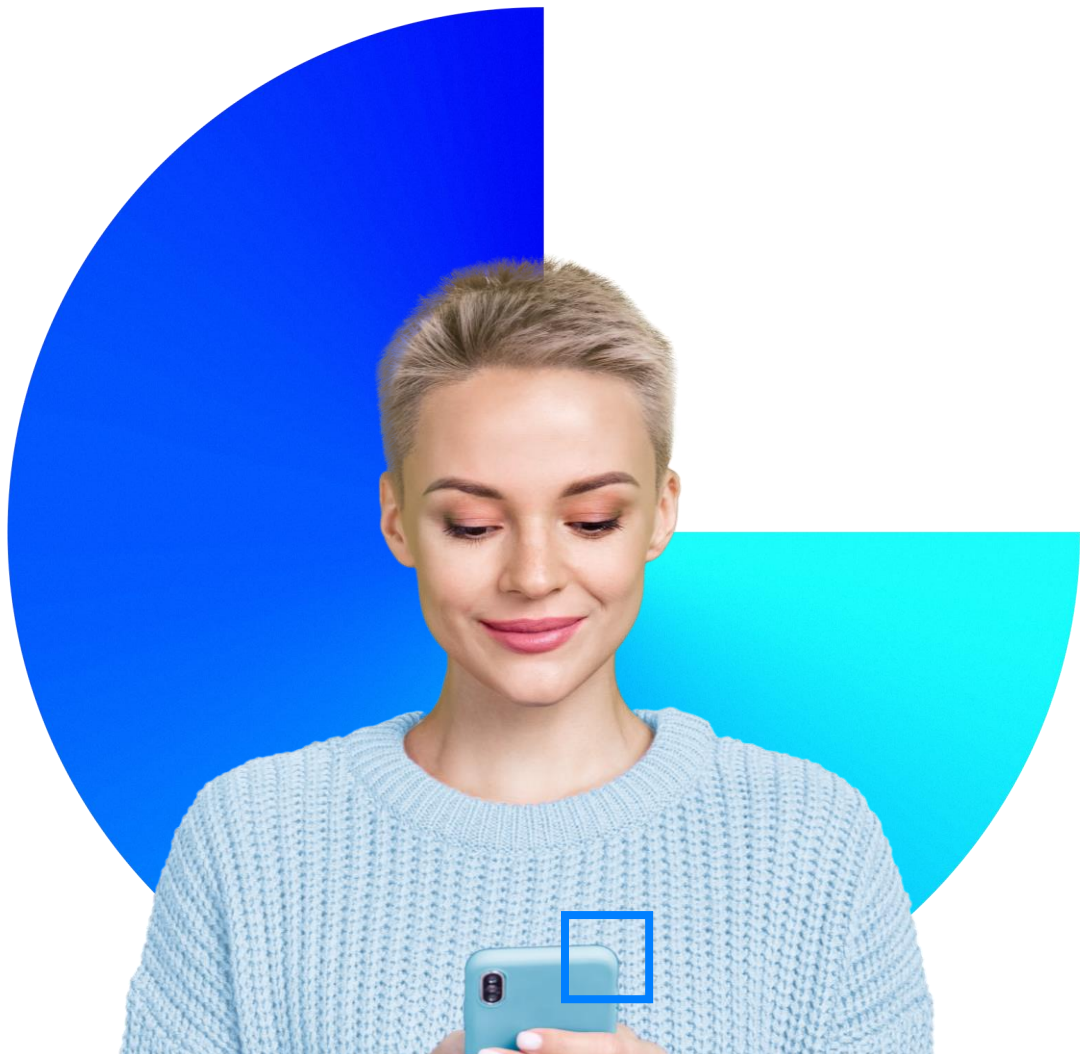
Introduction

Understanding consumer behavior and its underlying experience is most critical for businesses aiming to succeed digitally. Eye Tracking technology has emerged as a powerful tool in market research, offering unparalleled insights into how users engage with content.

eye square's In-Context Eye Tracking solutions represent a significant leap forward in this area, combining precision, accessibility, and user-friendliness to deliver actionable behavioral data. This has powerful applications in social media testing, ad performance analysis, and beyond.

Why we measure visual attention

Human Attention is the most valuable
resource in a competitive digital world





2.5
Seconds

Initial attention is highly implicit and influenced by 3 main factors: subconscious bio-processes, conscious processes like task or expectations and exposure situation (e.g. forced exposure vs. free browsing).

Research shows that human attention works best in a short window, „exploding“ in the first 2.5 seconds before tailing off. eye square’s studies (read more in the [“Fast,Bold, Beautiful” white paper](#)) highlight this golden zone and its importance.

In saturated media-environments with many competing stimuli this is especially valuable. Measuring attention in such crowded real-life contexts delivers critical data that can later be combined with emotional and explicit ones to understand which messages are really perceived and processed.

Measuring visual attention in context is a central component of eye square's research approaches. This is a challenge but crucial for designing messages more effectively. It enables customers to gain better insights into the “Economics of Attention”.

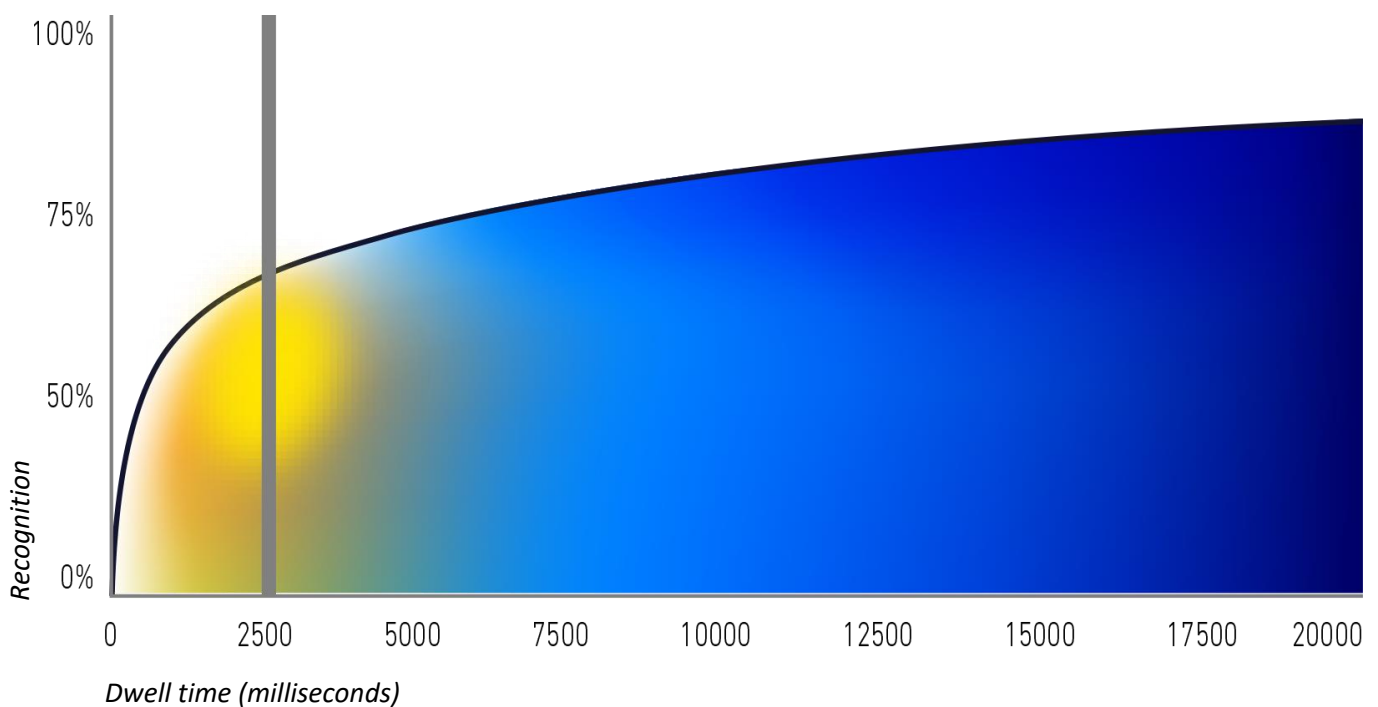
By testing advertising in a realistic context of use - e.g. in social media feeds or live websites, natural behavior of consumers can be captured and analyzed. This approach offers deeper understanding of the actual impact of advertising in real life. Results are more valid than highly controlled experiments with forced exposure situations.

Testing ads in context allows key indicators such as visual attention, engagement and brand perception to be accurately measured and then optimized. This enables early identification and correction of issues like information overload in ads, thereby optimizing the advertising impact.

Our research utilizes visual attention and measurement methods to analyze advertising impact, capturing both conscious and unconscious processing and evaluation of perceived information.

These approaches ensure that advertisers can not only attract attention but also convert attention into lasting brand loyalty and purchase decisions.

Advertising research on rapid media platforms such as Instagram, Facebook or TikTok shows, that recognition significantly rises within the initial **2.5 seconds** of engagement



Extremely competitive visual environments mean brief engagement times. Yet users can still be effectively reached. The capacity of human perception is remarkable, especially during the initial stage of attention.

Most engagement occurs between 1.5 and 2.5 seconds, representing a critical window for advertising effectiveness. Recognition grows exponentially within the first 2.5 seconds of viewing, before tailing off.

Substantial awareness can even be achieved within the first 0.5 seconds, as System 0 (perception), processes vast amounts of complex information at lightning speed.

Understanding platform functions, users and environmental factors is the key to making ads effective.

The neurosemiotic model of eye square

A key to understand the digital human experience in your market research

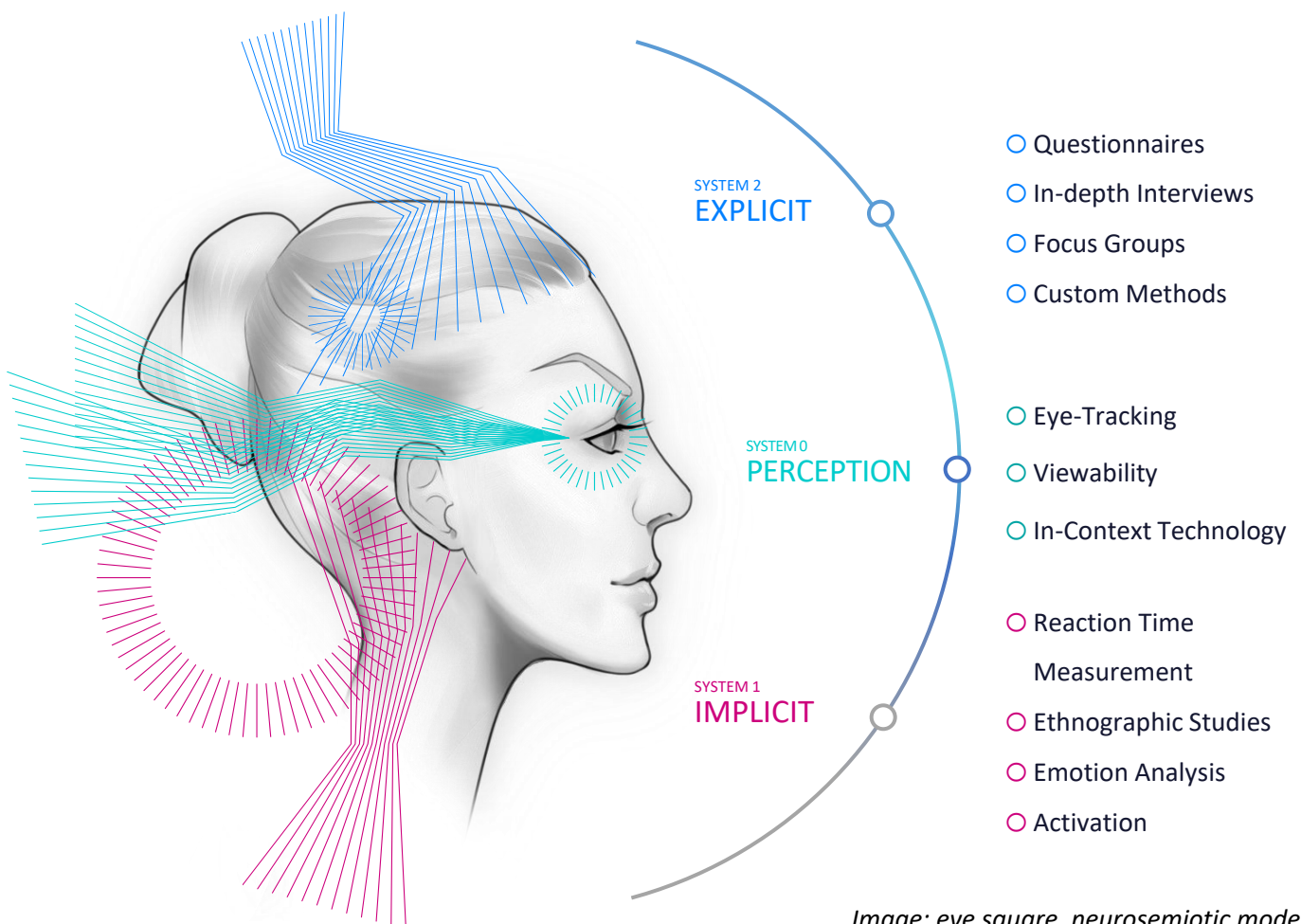
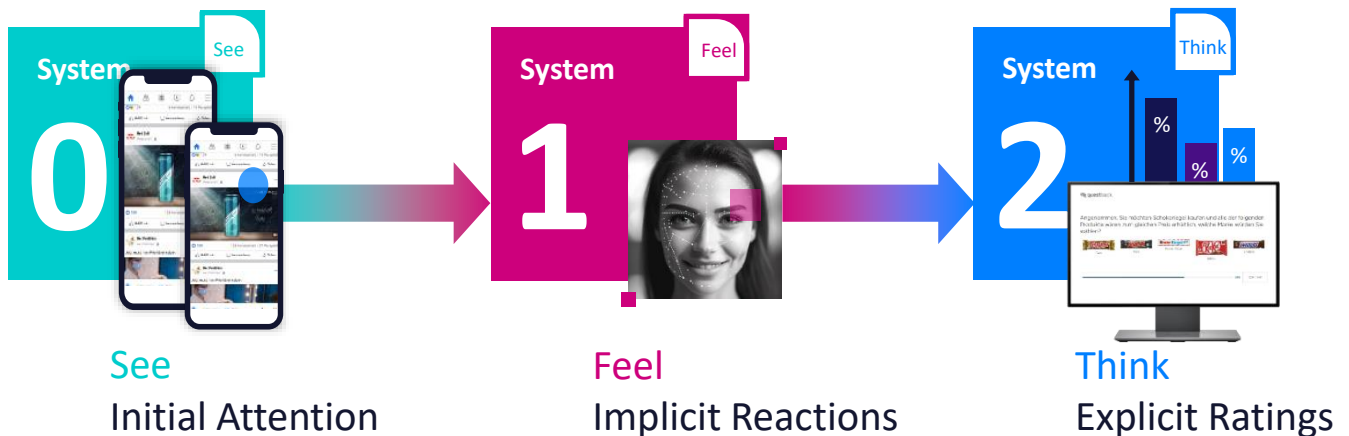


Image: eye square, neurosemiotic model

Take a holistic research approach to explore user engagement



Traditional market research often struggles to capture the nuances of **real-time user engagement**. eye square's **neurosemiotic model** is pivotal in its **holistic understanding** of the **digital human experience**.

We integrate three critical aspects of all human experience: **direct perception, implicit feelings, and reflexive thoughts**.

Our model deciphers the individual interactions between these layers, **offering a unique perspective on the real processing, reaction and reflection of digital stimuli**.

Direct Perception (System 0): Focuses on the immediate sensory experience, capturing how users initially perceive content. This aspect identifies stimuli that are impactful at the most elementary level of experience.

Implicit Feelings (System 1): Explores the unconscious emotional reactions responsible for decision-making and brand perception. They drive 95% of purchasing behavior and are difficult to articulate but crucial for the outcomes.

Reflexive Thoughts (System 2): Involves conscious reasoning about impressions. This layer ties emotional and perceptual experience into coherent judgment.

Our **multi-layered analysis** enables the **integration of implicit and explicit metrics**, making the neurosemiotic model **highly sensitive and predictive**.

By **simulating real media environments** with Live InContext testing, **eye square ensures that data reflects authentic consumer interactions**. This allows brands to design, test, and optimize experiences with precision, ensuring emotional resonance and cognitive clarity.

Ultimately, **our unique neurosemiotic model bridges the gap between subconscious drivers and conscious decisions**, unlocking deep insights into the digital human experience and **empowering more effective marketing and user engagement strategies**.

How we measure attention

Combining the InContext environment with **SEAL** [Smart Eye Tracking Algorithm] technology



The advantages of the SEAL technology



A fully standalone and user-friendly technology

It operates through a browser and features a sophisticated user interface. The technology is easy to use and requires no extra applications or hardware. Integrated into eye square's advanced InContext technology, The eye tracking provides genuine web-based capabilities, making it accessible for market researchers, media, and marketing professionals.

Universally compatible on all digital devices without extra hardware

SEAL operates independently of devices and is compatible with any camera and operating system. It is ideal for Bring Your Own Device (BYOD) scenarios, including smartphones, tablets, laptops, and desktops for testing, all without the need for extra hardware.

Enables easy panel

integration

The user-friendly technology ensures that you have access to budget-friendly options for your research needs.

Offers precise and valid results through an innovative device-sensitive algorithm

The advanced algorithm effectively tracks eye movements, delivering the accuracy and frequency necessary for reliable eye tracking. This software is engineered for optimal performance and in-depth analysis, facilitating a thorough comprehension of attention trends and human behavior while ensuring the validity of the data collected.

SEAL-A smartphone eye tracking revolution

Use our newest InContext Eye Tracking technology for your Social Media Tests



Explore more than 30 Media- and Retail-Environments and choose from over 50 display formats

Our revolutionary [SEAL \[Smart Eye Tracking Algorithm\] technology](#) is the result of intense efforts to optimize eye tracking as an implicit research method for changing challenges of the digital age. [Our brand-new technology combines patented eye-tracking tools with our successful InContext environments.](#)

With SEAL it possible to conduct digital experiments and social media tests on mobile devices: You can place your advertising in a natural digital environment and test your ads on popular platforms such as TikTok, Instagram, YouTube, and Facebook.

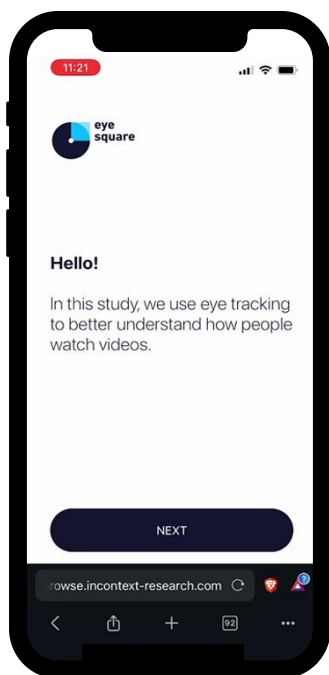
[The advanced algorithm accurately tracks eye movements, providing precision and frequency for effective eye tracking.](#)

As users scroll through social media profiles, the eye-tracking software unobtrusively records gaze behavior and collects important metrics, e.g. dwell time and ad interactions.

[The technology](#) powered by the SEAL engine [was developed with human behavior and individual movement patterns in mind.](#)

SEAL is designed for high performance and detailed analysis, delivering behavioral data and insights into attention patterns, user behavior - and ultimately your ad's impact.

The SEAL user flow

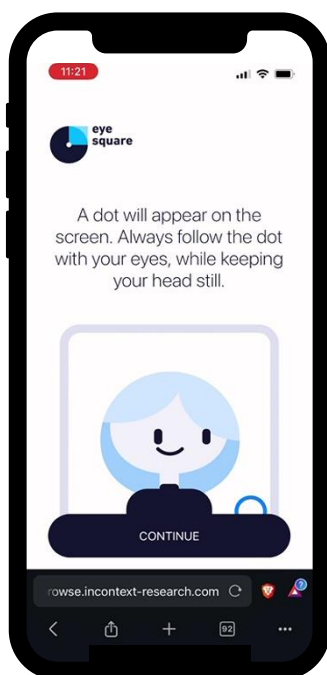


1. User Instruction

The SEAL user interface first provides all instructions for study participants.

They are also asked for consent to use the camera on their device for participating in the study.

All privacy details and transparency information are communicated (see next page).

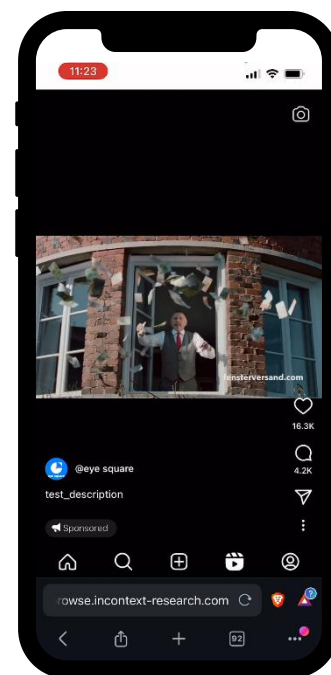


2. Eye Tracking Calibration

The calibration process for eye-tracking relies on the user's unique gaze patterns.

First users' head and face will be tracked in an anonymous way to be able to follow the gaze pattern. The participant will see several calibration points - like a moving dot visual targets on the screen.

The calibration ensures that the quality is sufficient, and that angle and lighting are good.



3. InContext Testing

Participants enter our InContext platform, e.g. a social media replica of an app experience.

They are then asked to browse a social media profile as normal.

During browsing one of the ad versions or no ad of the brand at all (control group) will be displayed in the feed and genuine attention and behavior measured and analyzed.

Afterwards the survey tool of your choice is used for a post-experience interview.

SEAL privacy & control

We ensure participant privacy and robust measures that guarantee full data privacy

No Access to Personal Data

The system does not collect personally identifiable information (PII) such as names, emails, or phone numbers. Data collection is limited to behavioral metrics like visibility durations and interactions with media elements, ensuring anonymity.

Privacy by Design & Default

eye square incorporates the principle of Privacy by Design and Default into its products, embedding privacy protections in the design and implementation of its eye tracking software. This ensures that privacy is a core feature of all projects.

Closed and Controlled Test Environments

Testing occurs in constrained environments that replicate popular media platforms but operate in private browser modes. This setup prevents access to personal data, URLs, or cookies, minimizing risks of data exposure or misuse.

Voluntary Participation & Consent

All research participation is voluntary, and explicit consent is obtained before any data collection begins. Respondents can withdraw their consent at any time, and their data will be deleted promptly if they do so.

Data Minimization & Anonymity

eye square minimizes the handling of personal data by working with external panel providers who recruit participants without sharing detailed personal information. This ensures that neither our company nor its clients have access to full participant details.

Secure Data Storage and Deletion Policies

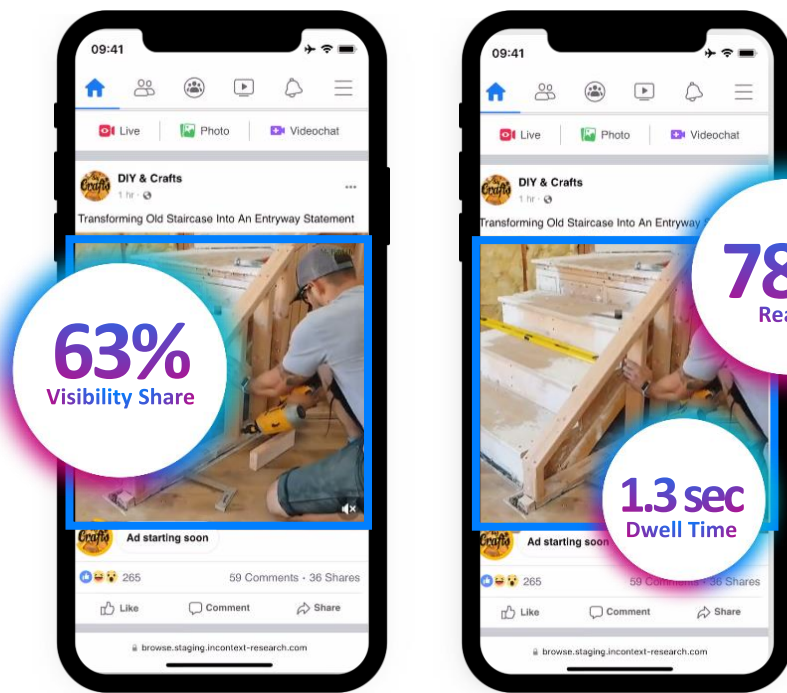
Any collected data is stored securely and deleted once the study's purpose has been fulfilled (within three months at most). This includes audio or video recordings, which are only used with explicit participant consent.

Quality control – fast turn arounds

eye square is an ISO20252-certified market research company that prioritizes data quality, protection, and experimental control. Our simulations are used by global research agencies, include over 50 media environments for quantitative studies.

We conduct in-context advertising tests without collecting personal data and only collect data on user interaction for the ad controlled by them. The results are presented in standardized reports with clear key performance indicators (KPIs) and compared with eye square's comprehensive benchmark databases. This allows for objective evaluation of an ad's performance and optimization potential.

Live InContext Demos



KPIs: Watch, clicked, scrolled, skipped and more

The advertising effectiveness KPIs offer a comprehensive understanding of how advertising is perceived and processed, enabling informed decision-making and maximizing campaign effectiveness. InContext metrics (here visibility share) are automatically recorded, indicating how long an ad was visible on the screen. By analyzing participants eye movements, we can now additionally determine if and for how long users actually looked at an ad.

Do you want to get an impression how the InContext platforms work?

Click on the link selection!



Desktop



Mobile

[Social Media](#)

[Website Display Ads](#)

[Video on Demand](#)

[TV](#)

[E-Commerce](#)

[Google SERP](#)

[Webcam ET \(Eyetracking\)](#)

[Social Media](#)

[Website Display Ads](#)

[Video on Demand](#)

[Audio Ads](#)

[E-Commerce](#)

[Google SERP](#)

Key Take-Aways

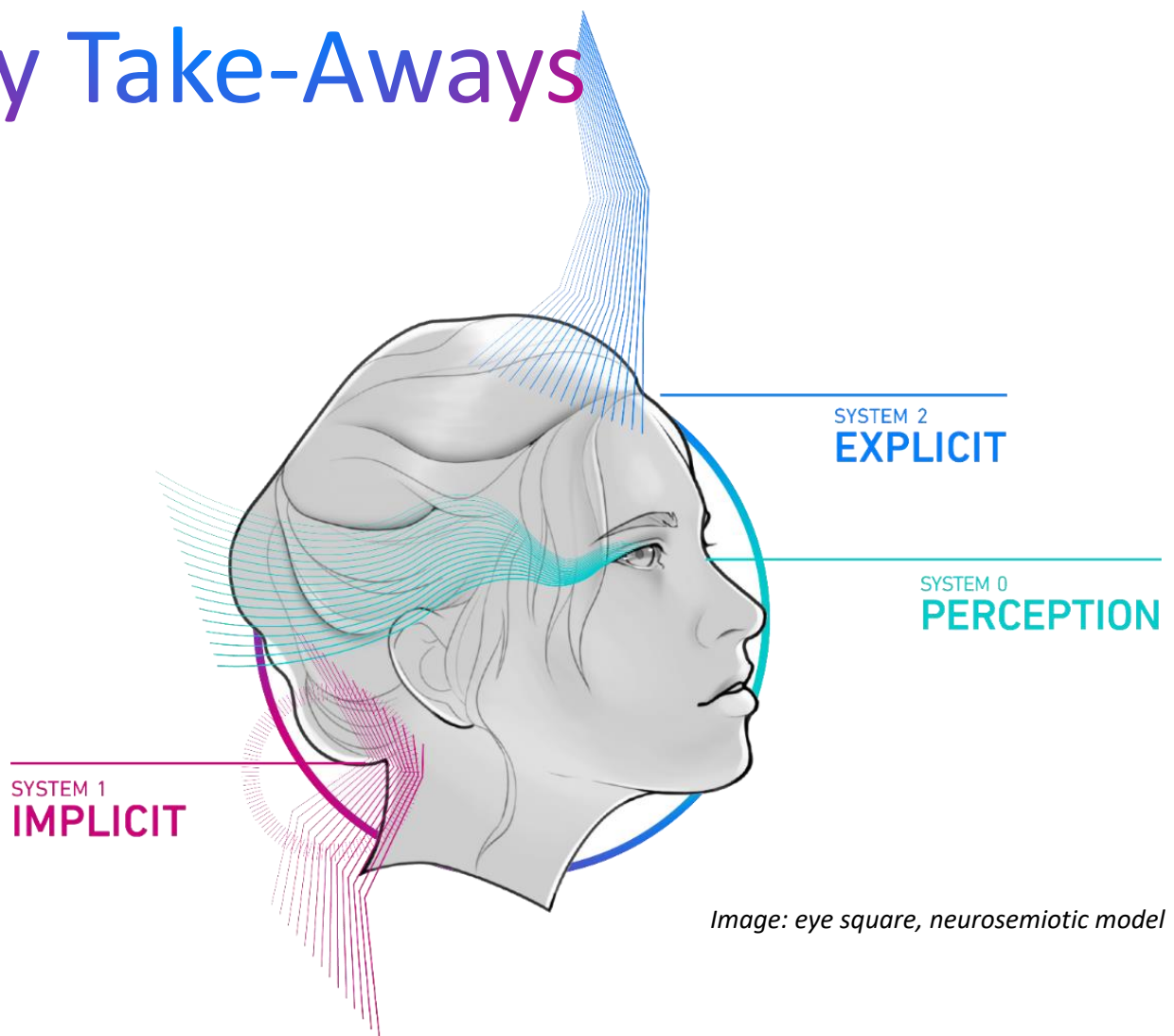


Image: eye square, neurosemiotic model

- 1.** Natural test environments are essential in ad research for evaluating human visual attention
- 2.** Human attention is a scarce resource and the new “gold” in the digital era
- 3.** Attention is as a powerful and efficient leading indicator for advertising success
- 4.** Attention measurement can be fast and scalable
- 5.** Technologies like BYOD user laptops and smartphone cameras open a new era of mobile market research.
- 6.** Our InContext platform offers a controlled experimental test environment with a maximum of data protection

What we measure

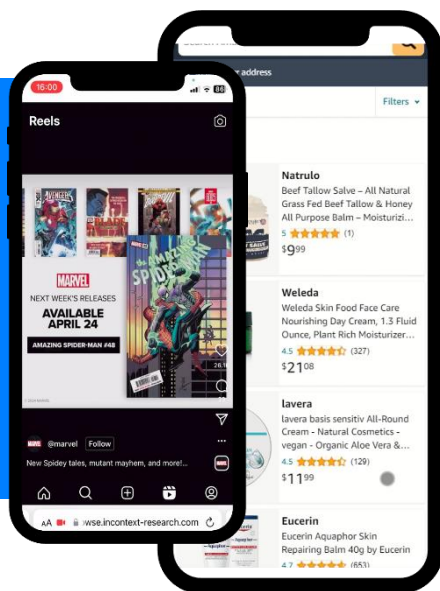
Discover how you can enhance ad effectiveness in the digital universe through InContext metrics and eye movement analysis



Case study on vertical mobile advertisement

Attention Measurement

Sample N= 1203 respondents*
diverse demographics
Gender: mix
Age: 18-49 year olds
100% smartphone participation



12 Test Groups
4 brands (cosmetics and consumer electronics)
3 vertical video top platforms

*powered by Dynata

Social Ads & Enhancing Ad Effectiveness

Developing a strong understanding of vertical video is crucial for maximizing advertising effectiveness. The case study ATLAS aimed to understand the relationship between ad exposure, attention, and purchasing behavior in four brands: JBL, Skullcandy, Nivea, and Weleda. [The study used eye-tracking technology SEAL to accurately measure attention.](#) Participants were exposed to mobile video advertisements across three platforms, then completed a shopping task on a simulated Amazon platform.

Attention Results

The study revealed significant differences in the retention of viewers across different platforms, indicating a wide range of effectiveness in retaining viewers over an ad's duration.

We found significant differences in purchase rates between test and control groups, with platforms with longer ad viewing times resulting in higher rates.

Branded Moments

Attention during brand-specific moments ("branded moments") significantly increases the predictive power for purchase rates. The recommendation is to place these moments frequently and strategically.

Key Findings

Social media ads influence all phases of the marketing funnel, including sales. Authentic and entertaining creator collaborations are particularly impactful. Long-term effects (e.g., increased customer loyalty) require strategic always-on campaigns.

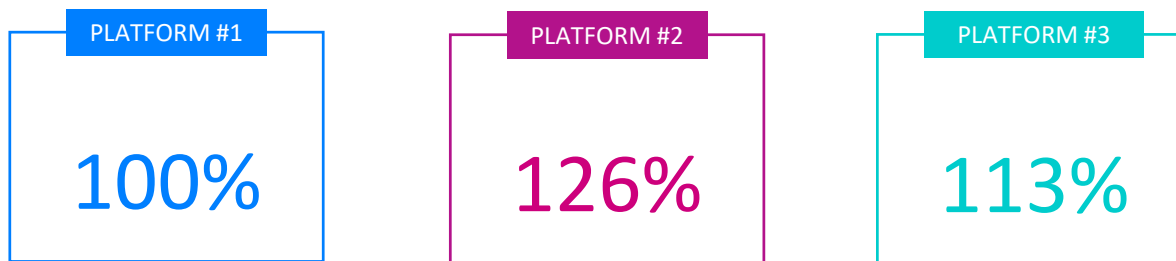
Attention patterns relate to different purchase rates



AVERAGE ATTENTIVE SECONDS

Source: ATLAS (May 2024)

Base: N(platform 1)=379, N(platform 2)=410, N(platform 3)=414 | Metric: Attentive Seconds (avg,)



RELATIVE PURCHASE RATE ON AMAZON

Source: ATLAS (May 2024)

Base: N(platform 1)=379, N(platform 2)=410, N(platform 3)=414 | Metric: Attentive Seconds (avg,)

The average attention varies depending on the platform

The case study reveals that vertical video significantly influences purchasing behavior following ad exposure. Platform 1 ads started quickly and declined rapidly, while platforms 2 and 3 started at the same pace but continued to capture attention.

We found that attention rates and relative purchase rates varied across platforms. Platform 1 had an attention rate of 3.3 seconds, while platform 2 had a 5.1 second attention rate and a 126% purchase rate.

Platform 3 had an attention rate of 5.3 seconds and a 113% purchase rate. The study also compared attention duration with stated purchase intent to determine which criterion better predicts actual sales on Amazon.

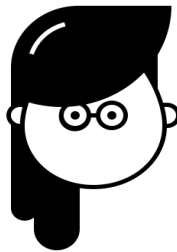
Both active and passive attention are crucial in assessing brand message effectiveness, with varying results for small and large brands and attention to an advertisement significantly influences purchasing behavior.

Who will buy the product? Longer ad viewing time has additional effects

Identical stated purchase intent

Difference in attention on ads

Gina



5s

Robin



3s

The example of the fictitious shoppers Gina and Robin illustrates, [how attention to an advertisement influences purchasing behavior](#).

Despite having the same intention to buy a product, Gina spends more time viewing the advertisement than Robin.

Longer ad viewing time effectively communicates brand values and intensifies the perception of brand love and other communicative messages.

This results in a higher likelihood of Gina buying the product. This highlights the importance of maximizing attention through targeted ad creation and placement.

These findings underscore [the importance of attention in influencing purchasing decisions](#).

For more information about the ATLAS study reach out to marketing@eye-square.com.

Power Tip

Practical implications for your advertisement

1. Not all vertical video-platforms are equal
Test your ads in a real context
2. Vertical video-ads trigger purchase
Use vertical video ads as part of your digital campaign.
3. Attention predicts purchase behavior
Measure attention to understand the purchase power of your ads.
4. Branded attention is even more powerful
Create attention-grabbing ads and incorporate multiple brand moments.

Are you looking for more insights?

We have some recommendations



SEAL-Technology

<https://www.eye-square.com/en/in-context-eye-tracking/>



Ad Insights

[The Magical 2,5 Seconds, Media Attention Benchmark](#)

Discover the power of brief moments in advertising with eye square's exclusive Media Attention Benchmark. Based on 320+ studies and 340,000 participants, this analysis reveals how short moments of perception shape memory recall. Learn why effective creation is key to capturing attention and leaving a lasting impact.

[Fast, Bold Beautiful](#)

This extensive smartphone-eyetracking study reveals the actual watch times of video ads on Facebook, Instagram and YouTube, as well as insights into how to create effective smartphone ads. Advertising on these platforms often seems to be left to chance, but effective advertising relies on strong creativity. The study also provides a psychological framework for understanding perceptual moments in social media and examines the human perceptual process.

[Meaningful Attention during Prime Screenime:](#)

[How do users experience ad offers on TikTok and Instagram](#)

How do user behaviors on TikTok and Instagram differ, and what does this mean for advertising effectiveness? The InContext technology provides a platform for valid product and ad tests in popular media contexts. Discover how this approach can enhance ad effectiveness and optimize your campaigns.

[Decoding Digital Video Environments](#)

This innovative research explored granular digital environments by simulating different applications across major platforms, revealing distinct consumer behavior patterns within digital video while maintaining consistent brand recognition. The study not only sheds light on the intricacies of digital advertising but also emphasizes the need for a strategic shift in how campaigns are designed and executed.



Perception Insights

[Smartphone Eye Tracking](#)

Smartphone technology has revolutionized eye-tracking, allowing for real-world data collection under real-world conditions. The technology captures eye position through its camera, enabling users and consumers to participate in settings not typically possible for eye-tracking research. The results are fast, accessed immediately, and quality control is prepared beforehand.

For download please visit the
eye square insights page!

<https://www.eye-square.com/en/insights/>

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