IPSOS VIEWS

SEEING THE UNSEEN

Humanizing AI, part three

How Vision AI and AI agents are transforming product testing

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At Ipsos, we champion the unique blend of Human Intelligence (HI) and Artificial Intelligence (AI) to propel innovation and deliver impactful, human-centric insights for our clients.

Our Human Intelligence stems from our expertise in prompt engineering, data science, and our unique, high quality data sets – which embeds creativity, curiosity, ethics, and rigor into our AI solutions, powered by our Ipsos Facto Gen AI platform. Our clients benefit from insights that are safer, faster and grounded in the human context.

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Seeing the Unseen: Humanizing AI, Part Three

The rise of generative AI has triggered tectonic shifts in product development. Today, manufacturers are shrinking their product development cycles from years to months, chasing a first-mover advantage in markets that change by the week.

Speed in product development matters. Meanwhile, sustainable growth remains rooted in **speed to superiority**. Without a clear understanding of the total product experience, products can fall short of consumer needs and expectations, diminishing repeat purchases and cross-brand purchases.

Seeing the Unseen, which marks the third edition in our Humanizing AI series, reveals how business, marketing, insight, and product development leaders can leverage HI+AI to see moments in product experiences, not memories – at speed, scale, and unparalleled levels of depth. By reinventing traditional in-home usage tests (IHUTs) with **video, observational techniques, Vision AI** and **AI agents**, we can surface hidden human truths and identify the product improvements that will shape tomorrow's winners.

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Limitations in legacy IHUTs

The in-home usage test (IHUT), in which consumers evaluate products in their homes, has long been a cornerstone of product testing. Unlike central-location tests (CLT), where consumers test products in facilities in controlled and standardized ways, IHUTs let consumers use and evaluate products in the context of daily life. Products are shipped to or placed with participants, used for a defined period, and then evaluated via online, phone, or in-person surveys. These surveys typically collect how the product performs against other products, delivering a limited set of diagnostics. This approach has been foundational to market research for decades.

However, in recent years, the market research industry has hit an inflection point. Expectations have soared, compressing product development cycles from years to months, leaving less time to evaluate products against all requirements to get them right from the start. The explosion of direct-to-consumer brands, coupled with social media amplification of consumer voices, means that product failures become viral moments, damaging brands within hours. At the same time, small and local brands can harness social media to amplify their reach with ease, challenging global brands. Industry data suggests that up to 70% of new product launches fail due to misalignment between a product and its promise, and its real-world performance, which has been cited as a primary factor. As traditional IHUTs were designed for a slower and more forgiving marketplace, they struggle to keep pace with today's demands. IHUTs run on surveys which depend on flawed consumer memories, with patchy, self-logged diaries completed days after usage (i.e, consciously tracking the product performance several times during the usage). At Ipsos, we recognized the need to investigate a new path to product testing.

Since 2012, Ipsos has systematically built targeted AI capabilities for product testing:

- Automated analysis and coding of social media linked to survey-based tests.
- Predictive analytics to simulate optimal product profiles using sensory, product analytical and consumer liking data.
- Large language models (LLMs) to generate innovations and improvements in products, packaging, and concepts, and instantly score their impact on overall liking[1].

This progression was not merely technological; it reflected a growing understanding that traditional research methods did not capture a complete picture of consumer reality.

That said, IHUTs' reliance on post-usage self-reported data is their Achilles' heel. While testing occurs in real-world context, the retrospective survey format misses moment-to-moment product experiences, and those moment-to-moment experiences can systematically diverge from retrospective evaluations. As a way to put the issue into perspective, the Nobel Laureate Daniel Kahneman differentiated between the "experiencing self" versus the "remembering self[2]" – our

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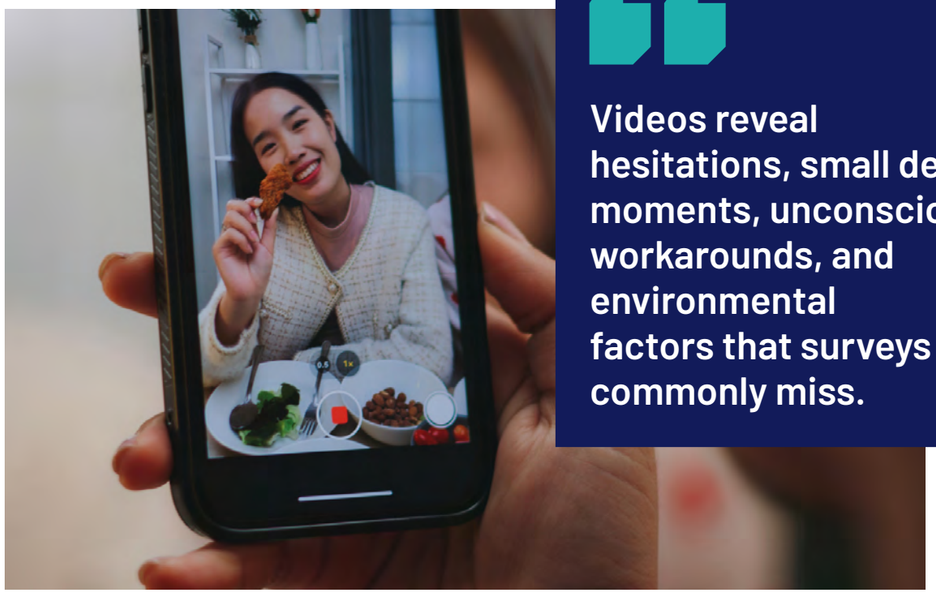
evaluations of longer-term events (e.g., using a product), are primarily grounded in **intense moments** and the **last experience** in the event rather than the overall average ("Peak-End Rule")[3].

Ultimately, retrospective survey questions do not capture the sequences of events and micro-experiences that shape final opinions, and recollections are vulnerable to bias and memory error. On that basis, conventional IHUT methods provide only a retrospective, partial view of the total product experience.

Three converging advances in technology in 2023-2024 enabled opportunities for IHUT improvement and transformation:

- The maturation of **diffusion AI models coupled with LLMs**, which are capable of nuanced video analysis.
- The emergence of **AI agents**, which can simulate specialized evaluation perspectives and function as synthetic experts.
- Increasing consumer openness and comfort towards **self-recorded videos**, following the pandemic's normalization of video communication.

With these three advances, we've re-imagined product testing to capture real-world product usage, grounded in video with Gen AI based analysis, to surface hidden truths using AI agents. The payoff? Richer and more actionable insights that help manufacturers create desirable products at scale, which succeed in a rapidly changing landscape[4].



> **Videos reveal hesitations, small delight moments, unconscious workarounds, and environmental factors that surveys commonly miss.**

The transformative potential of video

Instead of relying on imperfect memory about a product's performance, we can ask participants to press "record" on their product experiences. A video of the product journey, going from unboxing to repeated use and storage, provides unfiltered observational data. Videos reveal hesitations, small delight moments, unconscious workarounds, and environmental factors that surveys commonly miss. For example, videos can show people struggling with packaging — revealing details absent from survey answers but potentially a major barrier to repeat purchases.

Video in market research is not new; the revolution is our ability to analyze videos at scale and in granular detail using Vision AI, which is a type of AI that can see, and is leveraged to analyze visual stimuli, like pictures and videos. We should note that Vision AI is not new. In addition to analyzing videos of product experiences with Vision AI, we leverage the same technology to identify the products consumers use and buy in their daily lives, from their product repertoires (e.g., beauty routines), their living spaces, and many other spheres of their everyday lives. Vision AI describes and explains routines shown in videos with improved accuracy and in much greater detail than a respondent could retrospectively describe them in a questionnaire.

Focus is key: Nine observational dimensions

Videos are rich in information. In fact, each video presents an overabundance of information. We used Ipsos' vast expertise in observational techniques with a framework by James Spradley, an anthropologist, to direct the focus of Vision AI[5]. Spradley's framework consists of nine dimensions of observations (see Figure 1). While this framework may appear old-fashioned in today's technology-driven world, and while there are other frameworks with similar dimensions (e.g., the 5 Ws, such as Who, What, Where), we selected this framework as it is well documented, and hence easily integrated with LLMs. The framework is simply a means to an end.

To illustrate Spradley's framework, let us imagine we have consumers record themselves setting up a new printer and using it for the first time. Using Spradley's nine dimensions, we would capture:

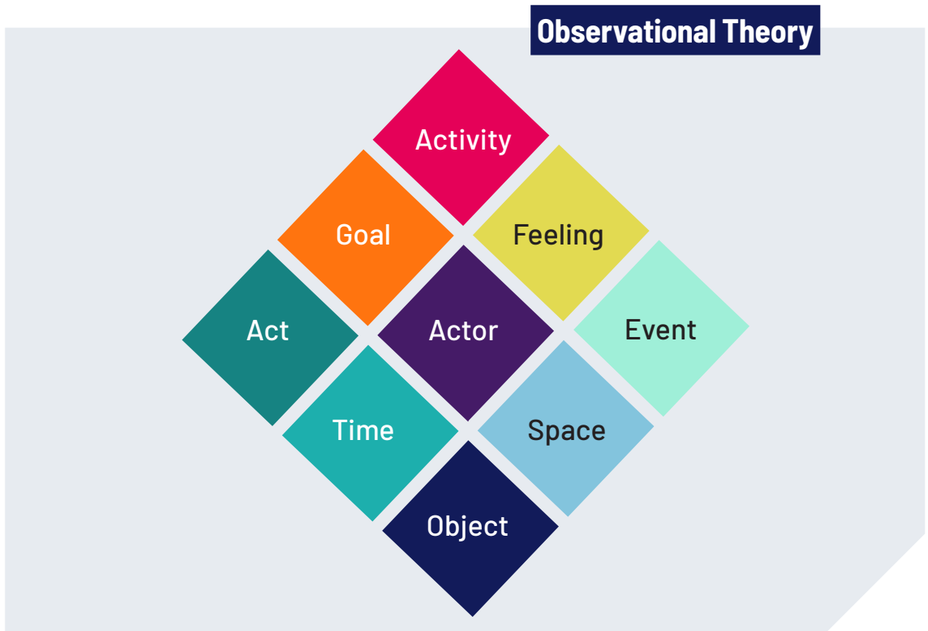
- **Actors:** The purchaser and anyone else that interacts with the printer
- **Objects:** The printer, laptop, and cables
- **Acts:** Connecting cables, installing cartridges
- **Activities:** Related acts done to set up the printer
- **Time:** Time to set up

- **Events:** Sequence of unboxing, setting up, usage
- **Space:** Room the printer is in
- **Goals:** The desire to set up quickly
- **Feelings:** Micro expressions of frustration or confusion

The nine dimensions are connected with one another – they are not independent. As such, we can think of the dimensions as forming a 9 x 9 matrix where all dimensions interact with one another. For example, a person lifting the printer out of the box and placing it on a table is the interaction between elements from three dimensions: actor, objects, and act. Spradley's elegant framework turns Vision AI from a simple detection tool into a powerful engine for observational insight. Structuring analysis around these dimensions allows us to help companies move beyond stated opinions to the rich and unspoken story of product use.

In summary, the nine dimensions guide Vision AI in identifying which observations to extract from each video. We perform this extraction on a per-person basis, allowing us to ensure accuracy by comparing each video with its extracted observations. Validating what the AI captures establishes a reliable ground truth, improves transparency, and builds trust in the project's findings[6].

Figure 1: James Spradley's nine dimensions of observations



Source:
James Spradley

Smarter together: Human and AI agent collaboration

AI continues to race ahead. As AI agents reach the mainstream, these autonomous, goal-oriented systems can perform tasks and make decisions with minimal human oversight. Beyond conversational LLMs, AI agents do not just talk – they act, as initiative-taking, organized specialists, built for specific outcomes. When trained with domain expertise, they can significantly elevate market research. In this study, Ipsos deployed specialized AI agents to enrich observations from product tests.

The videos were analyzed by six AI agents we developed and function as agentic experts, based on our experience testing products globally and leveraging our in-house experts. These AI experts enable us to capture the nuances of consumer engagement with products, and derive deeper insights into the cultural, cognitive, and emotional dynamics at play in a scalable and cost-efficient way – each building upon their areas of expertise (see Figure 2).

Leveraging a team of specialized AI agents offers a transformative approach to understanding consumer behavior, turning raw video observations into rich actionable insights. The primary advantage lies in the diverse perspectives these agents bring to the analytical process. Business, marketing, insight, and R&D professionals can move beyond simple observations to uncover the deeper and multifaceted "Why" behind every action by assigning distinct expert roles, such as:

What is an AI agent?

An AI agent is a digital assistant that can **autonomously process inputs, make decisions**, and **take actions to achieve specific goals**.

- A **semiotician** to decode unspoken symbols in a user's interaction with packaging
- An **anthropologist** to understand the cultural context of product use in the home
- A **behavioral economist** or psychologist to identify cognitive or physical triggers behind a consumer's frustration

Figure 2: An interdisciplinary team of AI agents, designed to observe, generate insights and make recommendations

Source: Ipsos

This multi-agent approach, in which each AI agent specializes in a different domain, helps reduce the bias inherent in a single viewpoint and reveals subtle patterns that a single human analyst might miss. Furthermore, these AI agents can process and synthesize vast amounts of qualitative data at speed and scale, identifying recurring themes with incredible efficiency. The result is not just a collection of disconnected findings, but a profound, holistic and nuanced understanding of the consumer's total product experience that brings targeted, data-driven recommendations for product design, packaging, and marketing.

We should make it clear the AI agents are analytic collaborators that complement human intelligence, ensuring interpretive coherence and cultural validity. Adding human intelligence to both developing agents as well as analyzing the results is crucial. Human interpretation and oversight of what AI provides remains central to our approach. AI should complement, rather than replace, human insights[7].

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Illustrative pilot: Frozen pizza

In a pilot study, consenting consumers used their smartphones to film themselves preparing, heating, and eating frozen pizza at home. Traditional testing would have relied on after-the-fact reports; video captured the full sequence.

To bring this to life, consider one participant we call "Jane". The video revealed how Jane carefully unwrapped the pizza and manually re-distributed toppings that had shifted in transit. The AI reasoned for this re-distribution as evidence of a gap between the intended product presentation and its reality.

The AI recommended redesigning the packaging — for example, adding a firm tray or compartmentalized insert to stabilize toppings during shipping.

Powered by the Ipsos Emotional Framework, a cross-cultural emotional framework built around the dimensions of valence, arousal and control[8], which was used to finetune the AI, our Neuroscience agent detected micro-expressions: focused anticipation as the pizza was baking and delight on first taste (a head nod and a finger lick). That moment of surprise at the product quality - *"I can't believe it's frozen"* - emerged as the emotional peak and a potential lever for brand loyalty. These subtleties in the product experience inform product design and communications. For instance, marketers could highlight first-taste surprises in creative messaging (e.g., *"Tastes like fresh", "Crave-worthy crust"*).

Our AI agents pinpoint exactly which improvements will make consumers desire the product more, turning observations into superior products.

Figure 3: **Video of a consumer heating a frozen pizza, analyzed by Vision AI**

We capture real moments of product use on video, then connect what people do with what they say they think they did, helping to solve the say-do-gap. This powerful combination lets our AI agents pinpoint exactly which improvements will make consumers desire the product more, turning observations into recommendations for product superiority. For example, we can predict which change will boost consumer liking more: an upgraded easy-tear box or tray, or a pizza format designed for ingredient stability (see Table 1).

Table 1: **Drivers of liking and product improvement ideas**

Product improvement areas		Predicted impact on overall liking	Suggested idea
Topic	Detailed description		
Streamlined and integrated preparation process	Consumers seek *efficient, low-effort frozen pizza preparation* with an all-in-one solution, emphasizing (...)	**1,53**	**Multi-function pizza box solution:** An upgraded pizza box/ tray with a perforated, easy-tear (...)
Improved packaging usability and reduced frustration	Consumers frequently *encounter frustrations and interruptions due to packaging difficulties*. These include hard-to-open designs, lack of clear opening instructions (...)	**1,48**	**Grip-EZ tear-open packaging**: A packaging redesign with bold, textured grip area and clearly labeled pull tabs; utilizes (...)
Desire for cleaner consumption experience	Consumers express a strong desire for *a cleaner, tidier eating experience with frozen pizza.* The persistence of toppings falling off, greasy hands, and (...)	**1,18**	**Tidy slice pizza structure:** A pizza format that focuses on ingredient stability: uses slightly firmer cheese, improved topping adhesion, and a crust engineered for clean (...)

Note: Impact scores above 1 are more important. The higher the score, the more important. The impact score builds upon the % of observations and the correlation with a seven point Overall Liking score.

> With Vision AI and AI agents, we can process vast volumes of video at scale to generate dynamic, immediate, and human-centered insights.

A fly on the wall, at scale

Mobile devices let us be a fly on the wall in consumers' homes, observing genuine interactions across use cases. With Vision AI and AI agents, we can process vast volumes of video at scale to generate dynamic, immediate, and human-centered insights. These insights guide higher-impact product and packaging improvements, sharpen marketing and communications, and minimize the risk of costly product failures.

Traditional product testing remains valuable; however, it is limited in its dependence on subjective, retrospective self-reports in surveys. In-home videos, combined with Vision AI and expert analysis by AI agents in an observational framework, mark a new frontier in market research. They provide a richer, more authentic, and more detailed view of the product experience.

When embraced responsibly, this new approach to product testing empowers brands and businesses to *see the unseen* – to discover hidden opportunities, draw on targeted recommendations, and develop products that win - because they resonate on a deeper level to earn consumer loyalty and deliver sustainable growth.

Seeing the Unseen: Humanizing AI, Part Three

Key takeaways

01

Traditional product testing now has eyes and a brain. Traditional in-home product tests, a cornerstone of market research, alongside observational techniques that leverages video technology, is poised for a revolutionary breakthrough with HI+AI. By analyzing video content with pre-trained agentic Vision AI models, we unlock unprecedented, granular insights at scale, transforming how businesses understand consumer behavior and develop superior products.

02

Brands can see lived moments, not just memories. With pre-trained AI agents and the appropriate observational framework, Vision AI captures granular, in-the-moment product usage, context, and experiences – surpassing limitations of after-the-fact recall in post-usage surveys.

03

Beyond product specs, the total product experience wins. Deep, human-centered insight can make the difference between mere technical parity and a product that excels in every dimension of the experience, as perfectly suited to its context and designed to delight.

Discover Ipsos product testing

As the world's largest product testing advisor, Ipsos leverages the powerful combination of Human Intelligence (HI) and Artificial Intelligence (AI) to enable faster, smarter product development in over ninety markets – empowering brands to:

Spot emerging trends early. Social signals to inspire new ingredients, flavors, formats, and fragrances.

See the unseen. Analyze consumer videos at scale with actionable recommendations with specialized AI agents.

Decide in real-time. Watch product experiences as they happen. Make the right decisions in partnership with consumers and collaborators.

Make moves that matter. Generate innovations and improvements linked to higher overall liking, with AI models trained on fresh, product-specific feedback.

Predict market fit. Identify where a product can play and win through sensory, category, cultural, and scaling fit.

To learn more about our POV, or about product testing with Ipsos, please contact your local Ipsos team.

Endnotes

1 Reynolds, N. and Mu, J. (2024). The New Era of Innovation. Shattering the Stage Gates with Generative AI. Ipsos POV

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3 Fredrickson B. L. and Kahneman D. (1993). Duration neglect in retrospective evaluations of affective episodes. Journal of Personality and Social Psychology, 65 (1)(1993), pp. 45-55.

4 Reynolds, N., and Ho, C. (2024). We are more than our senses. Taking product development to the next level. Ipsos POV

5 Spradley, J. (1980). Participant observation. Holt. New York USA

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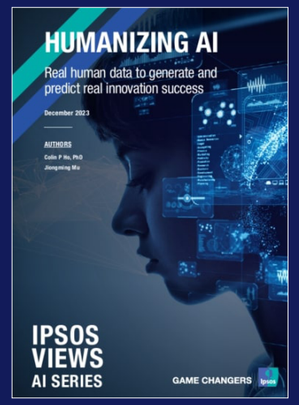
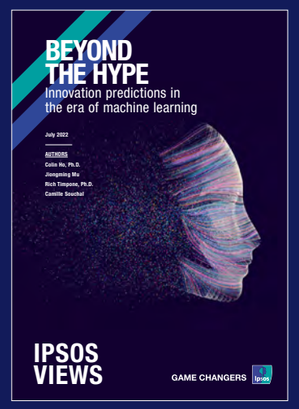
7 Bangia, A., McIntyre, R. and Legg, J. (2024). Empathy or Emptiness. Unravelling the Impact of AI on Human Connection in Qualitative Research. ESOMAR Congress.

8 Garcia-Garcia, M., Baldo, D. and Timpone, R. (2023). Emotions around the world. A cross-cultural framework for emotion measurement. Ipsos POV

Further Reading





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