Listen Smarter, Build Better:

How AI-Powered VOC is Changing Innovation as We Know It

Agenda

- Voice of the Customer
- The Evolution of AI-Powered VOC
- Case Studies
- Q&A

Applied Marketing Science

Revolutionizing VOC through academic collaboration

Establishing the VOC process

"The Voice of the Customer" by Abbie Griffin and John R. Hauser, Marketing Science, Winter 1993

1993

2019

AMS's first machine learning model

"Identifying customer needs from user-generated content" by Artem Timoshenko and John R. Hauser, Marketing Science, January 2019

An LLM to identify customer needs

"Can LLMs formulate customer needs?" by Artem Timoshenko, John R. Hauser, and Chengfeng Mao, submitted for publication, 2025

2025

Customer Needs

The levers that represent **sources of customer value**

Occur when a customer seeks a benefit that a product or service could deliver

There are many types of customer needs, including but not limited to:

Functional

Product

Segment

Emerging

Service

Universal

Enduring

Fleeting

Emotional

Timeless

Customer needs are NOT

Solutions

- A specific way to address a need, often a product, service, or feature

"A memory foam mattress will help me sleep better."

Target Values

- A measurable or specific criterion that defines the acceptable performance of a solution

"The mattress should be at least 12 inches thick and have a firmness rating of 6 out of 10."

Opinions

- A subjective judgment, belief, or preference, often influenced by personal experience or brand perception

"Casper makes the best mattresses."

Need: "Always wake up feeling well-rested"

What is VOC?

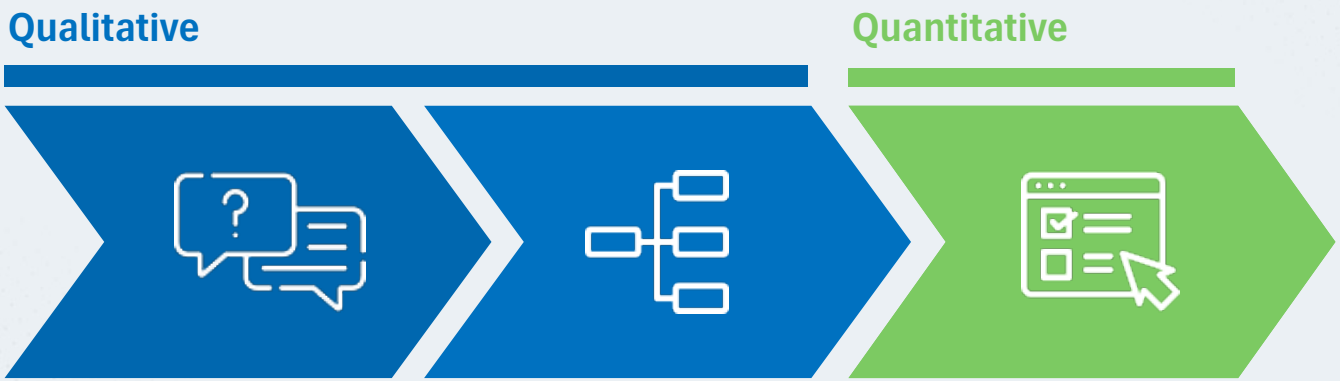
A **complete** set of customer wants and needs

Expressed in the **customer's own words**

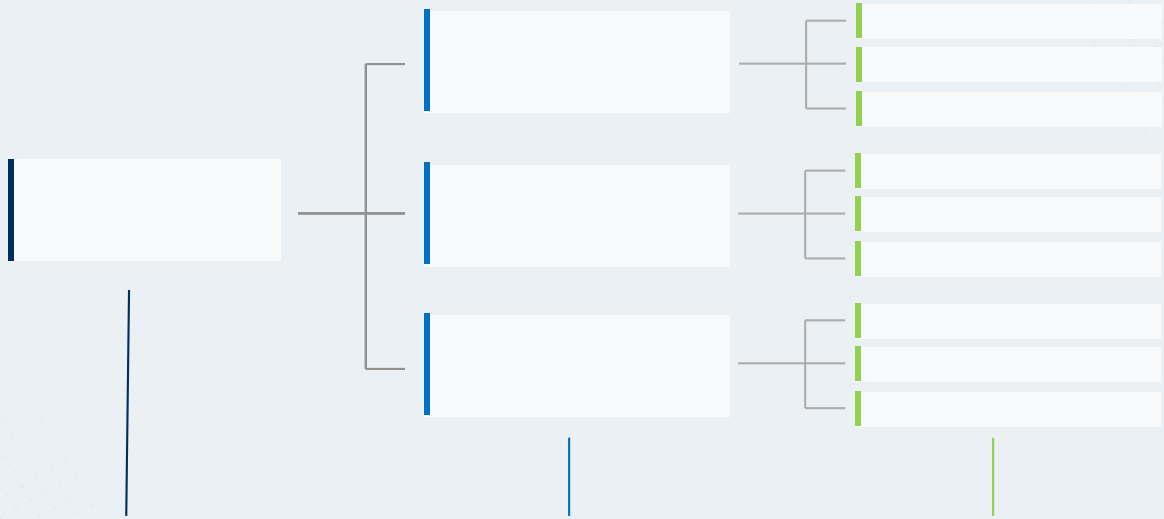
Organized **by the customer**

Prioritized by the customer in terms of **importance** and **current satisfaction**

The VOC Process



The **needs hierarchy** is a powerful framework that allows teams to effectively *act* on customer needs



Primary
4-8 needs
Strategic categories (e.g., product function, aftermarket parts)

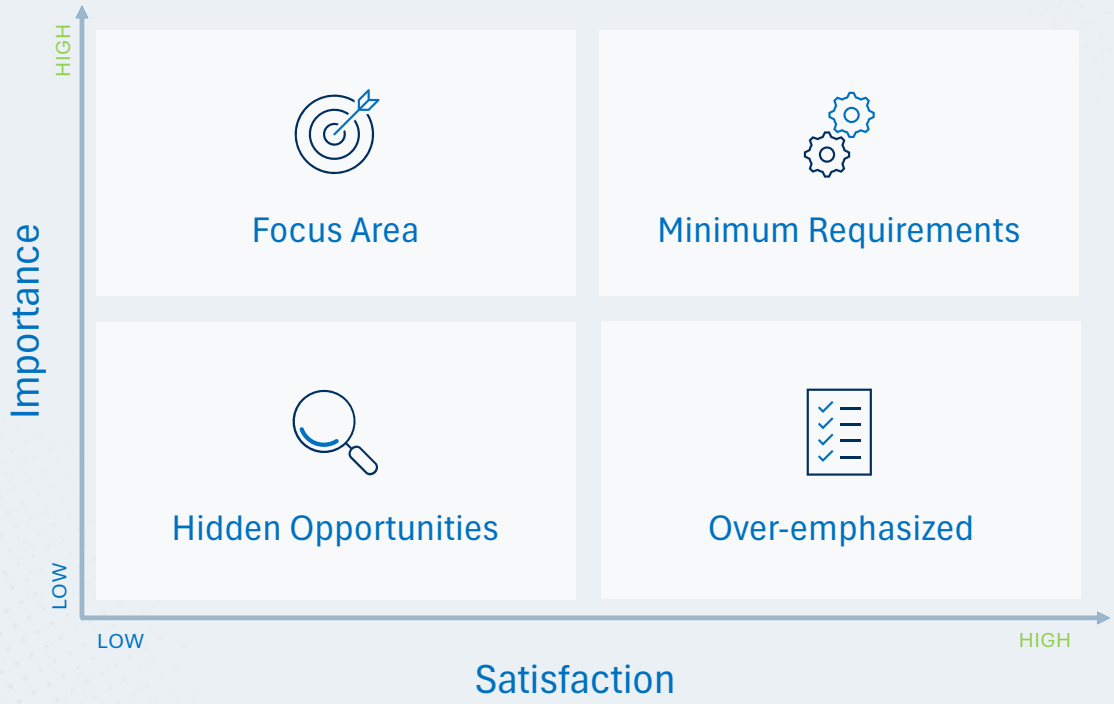
Secondary
20-30 needs
Customer-defined needs from affinitization

Tertiary
+/-100 needs
Detailed customer needs, directly from customer verbatims

Example needs hierarchy

This diagram shows just a single primary category of the full hierarchy.

The **market opportunity matrix** allows teams to pinpoint the most important unmet needs to solve for



Traditional VOC relies on customer interviews

Professional VOC teams conduct and transcribe customer interviews to identify needs

But now, there are **many** potential sources of insights, even in B2B categories: Customer needs can be extracted from all types of textual data


A goldmine of customer insights beyond interviews
3 billion
Active social media users
100,000
Online forums
2 hours
Spent on social media per day on average
60 million
Online reviews
265 billion
Customer service calls per year
11
Customer service calls per person per year

In B2B contexts, several other sources emerge

- Email communication
- Chatbot data
- Company website inquiries
- Open-ended survey data
- YouTube Channels
- Specialized Social Media Groups
- Industry forums
- Reddit
- *The diversity of channels and the substantial volume of interactions underscore the importance of a comprehensive VOC strategy that encompasses multiple platforms*

It’s challenging to formulate needs

- It requires a deep customer understanding of brands, products and experiences
- It requires intelligence, empathy and creativity
- It requires practice and training

The new challenge with VOC:

Due to the explosion of available data, identifying customer needs has become time consuming and overwhelming

Today's question:

What if AI could identify customer needs?

2018: AMS's first machine learning model

In 2018, AMS worked with MIT researchers to develop a novel machine learning algorithm for VOC

The early model could pull verbatim customer insights to effectively summarize large textual data

The model could extract customer insights in the form of verbatim customer insights, but it **could not formulate need statements**

2025: In collaboration with academic experts, AMS has developed

The only fine-tuned LLM designed specifically to identify and formulate customer needs

AMS

Artem Timoshenko
Northwestern Kellogg

John Hauser
MIT Sloan

Chengfeng Mao
MIT Sloan

Why not use ChatGPT to identify & formulate needs?

Overly generic

Research has shown that ChatGPT and similar AI platforms return only generic, high-level needs.

The information lacks the critical, insightful details that drive innovation.

Hallucination risks

These platforms can pull in additional information that your customers didn't say in interviews, which can be dangerous and introduce items customers don't care about.

Privacy concerns

Significant risks in putting your data into public AI platforms.

Your proprietary data becomes public data.

Fine-tuning the large language model

Training the model

Using data from ten professional VOC studies

Base LLM

Vicuna 13B

Supervised fine-tuning

Fine-Tuned LLM

Vicuna “GPT-VOC” 13B

Fine-tuning the large language model

The LLM was developed using ten professional VOC studies with more than 1,500 customer needs, spanning numerous product and service categories.

The LLM was trained similarly to professional analysts

The supervised fine-tuning approach mimics how humans learn to analyze VOC data

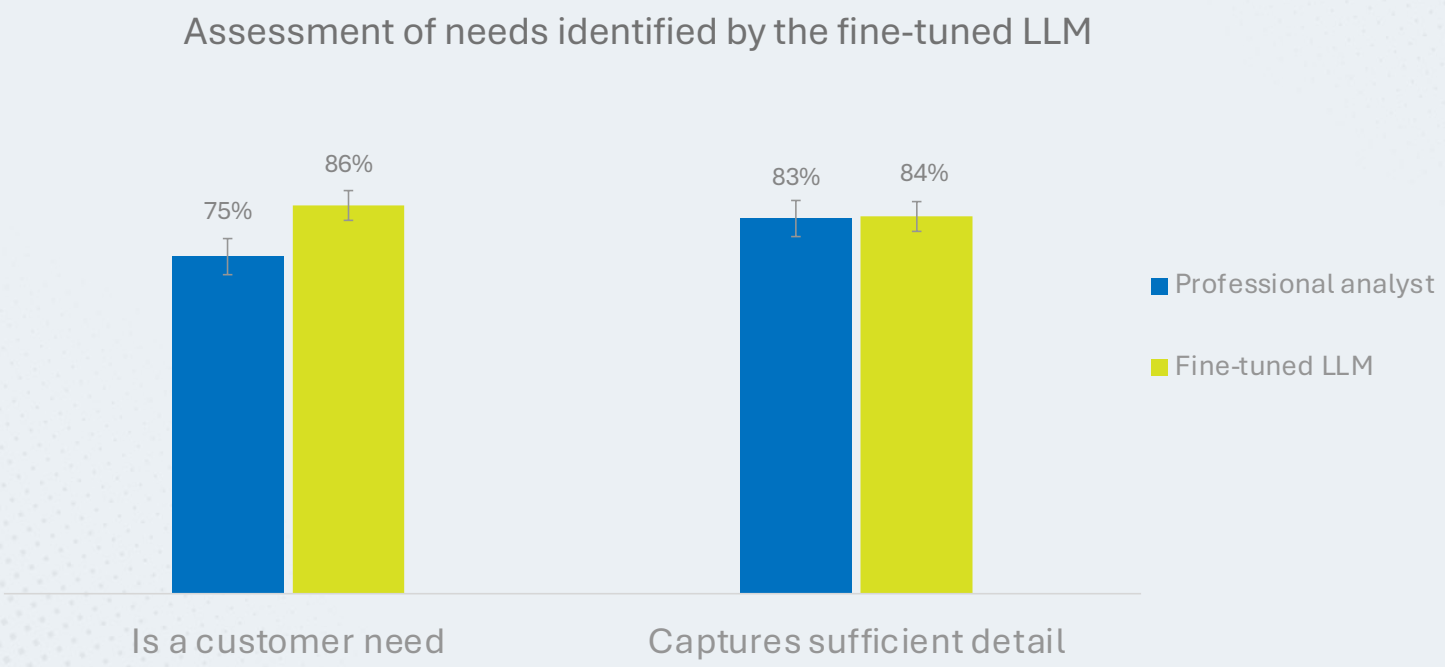
Prompt engineering

Professional analysts may initially be introduced to the process by reading training materials.

Fine-tuning

They continue to refine their skills as they gain experience crafting customer needs statements and receive feedback from those who are more experienced.

In a blind test, the fine-tuned LLM performed as well as professional analysts



The LLM successfully identifies all types of needs

Case Study 1 :

Poultry

Uncover new, rich category insights to drive innovation and competitive advantage in the category

The process

The dataset consisted of nearly **7,000 customer verbatims** spanning chicken related topics

1. Human analysts gather publicly available data online, compile them into a dataset and **upload the data to the LLM**
2. The **LLM extracts detailed customer needs**
3. Using a sample of data, **human analysts can supplement the LLM output** for a complete analysis
4. With the combined, comprehensive list of needs, human analysts **winnow and affinitize the needs**
5. Human analysts organize the needs into a single, **comprehensive needs hierarchy**, creating primary and secondary needs to structure the tertiary needs

How does the LLM use comments to make needs?

Verbatim	Need
I'm still dancing over here after savoring (but not quite feeling like I'm indulging) on these Real Good Foods Co. Lightly Breaded Chicken Breast Strips! **They have so much good in them that I can eat them and not feel guilty while still enjoying every last delicious bite!** They always hit the spot and I can't buy enough to keep my family happy and satisfied. We all love them and will continue stocking our freezer with them!	A product that **does not make me feel guilty** (e.g., feel satisfied, not overindulged)

One comment can have multiple needs in it, but the LLM is choosing the stronger representation and it's highly likely those needs are mentioned elsewhere.

In this case, we have needs about keeping families happy and being able to buy the same product without issue **are captured elsewhere.**

The LLM used 6,978 comments to generate more than 160 consumer needs

6,978 comments input into the LLM

↓

6,698 needs returned from the LLM

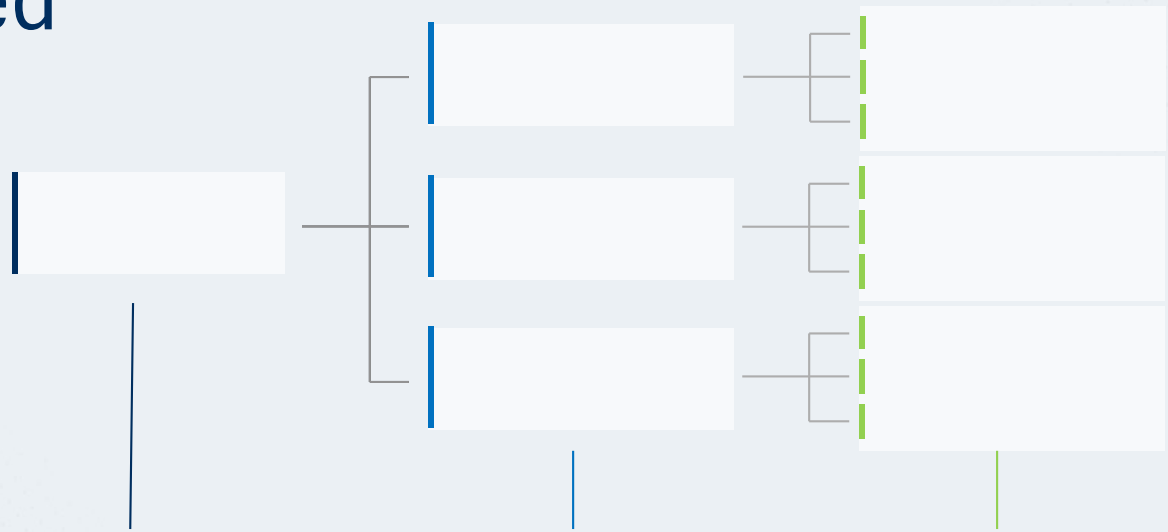
↓

2,500 needs randomly selected for human review and winnowing

↓

139 needs from LLM + 21 needs identified human analysts

Our final needs hierarchy consisted of 160 customer needs; well over the 80-120 needs expected



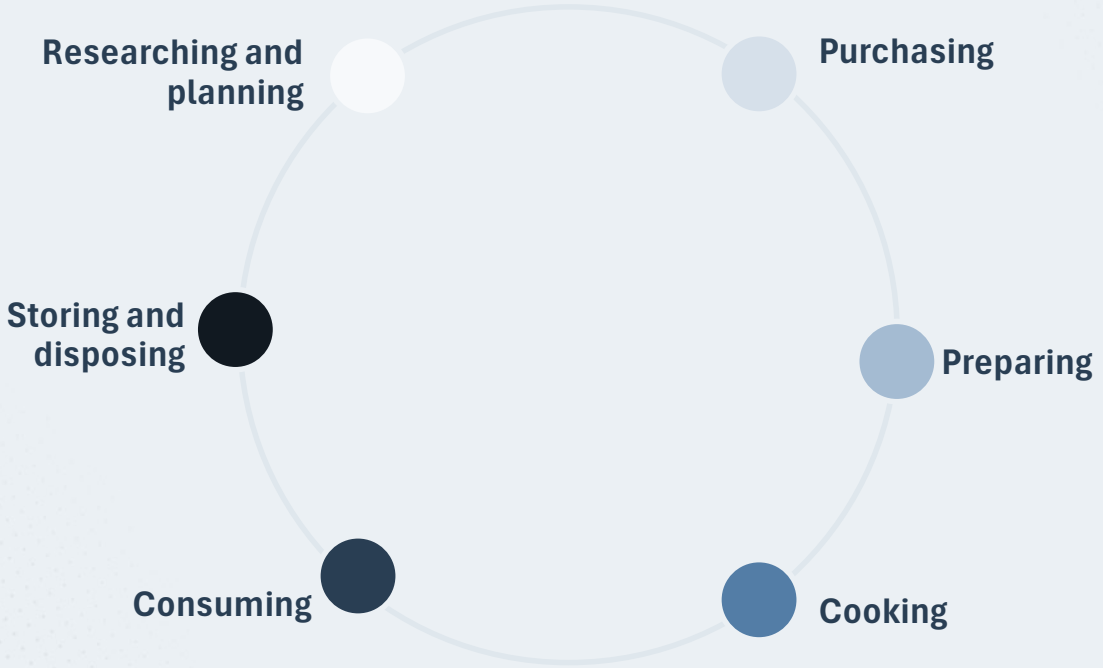
Primary
8 needs
Strategic categories (e.g., product function, aftermarket parts)

Secondary
45 needs
Customer-defined needs from affinitization

Tertiary
160 needs
Detailed customer needs, directly from customer verbatims

The Fine-Tuned AI model surfaced approximately 80% of needs and enough detail to formulate a complete list of secondary needs

We mapped each detailed need to a step in the purchase journey



The LLM identified a robust set of customer needs

1. The LLM can **extract a complete list of customer needs**, articulated **in the customer's own words**
2. A traditional Voice of the Customer study identifies 80-120 customer needs. The LLM finds those needs and **additional, infrequently mentioned, important needs**
3. The **needs identified by the LLM were specific and detailed**. They were well-formulated, proving this is a repeatable process on par or exceeding traditional research

The Fine-Tuned LLM **significantly streamlines VOC**, allowing teams to **focus on the value-add tasks**

Project steps	Traditional qualitative study	LLM
Project kickoff, align on objectives	X	X
Develop qualifying criteria and screening document	X	Not applicable
Develop discussion guide	X	
Recruit respondents	X	
Interview and transcribe	X	
Compile data	Not applicable	X
Needs creation	X	*Not applicable*
Winnowing, affinitization, hierarchy development	X	X
Report development	X	X

Case Study 2 :

PDMA Future of Membership VOC

Using AI-Powered VOC to uncover what members - and future members - really need from PDMA

What did we want to learn?

1. What drives PDMA membership, event participation, and engagement?
2. Why do people join, stay, or leave?
3. What do future members want and need?

A partnership with PDMA to explore the future of professional association memberships

What did we do?

1. Conducted in-depth interviews across key segments of interest
2. Used LLM-based AI to extract in-depth needs
3. Analyzed opportunities for innovation through quantitative measurement

Qualitative Interviews

Phase One

(N=21)

- In-depth telephone interviews with academics, practitioners, and service providers (N=21)
- Develop hypotheses, which will be tested with quantitative research
- Collect insights that will be used in the needs hierarchy

Quantitative Survey

Phase Two

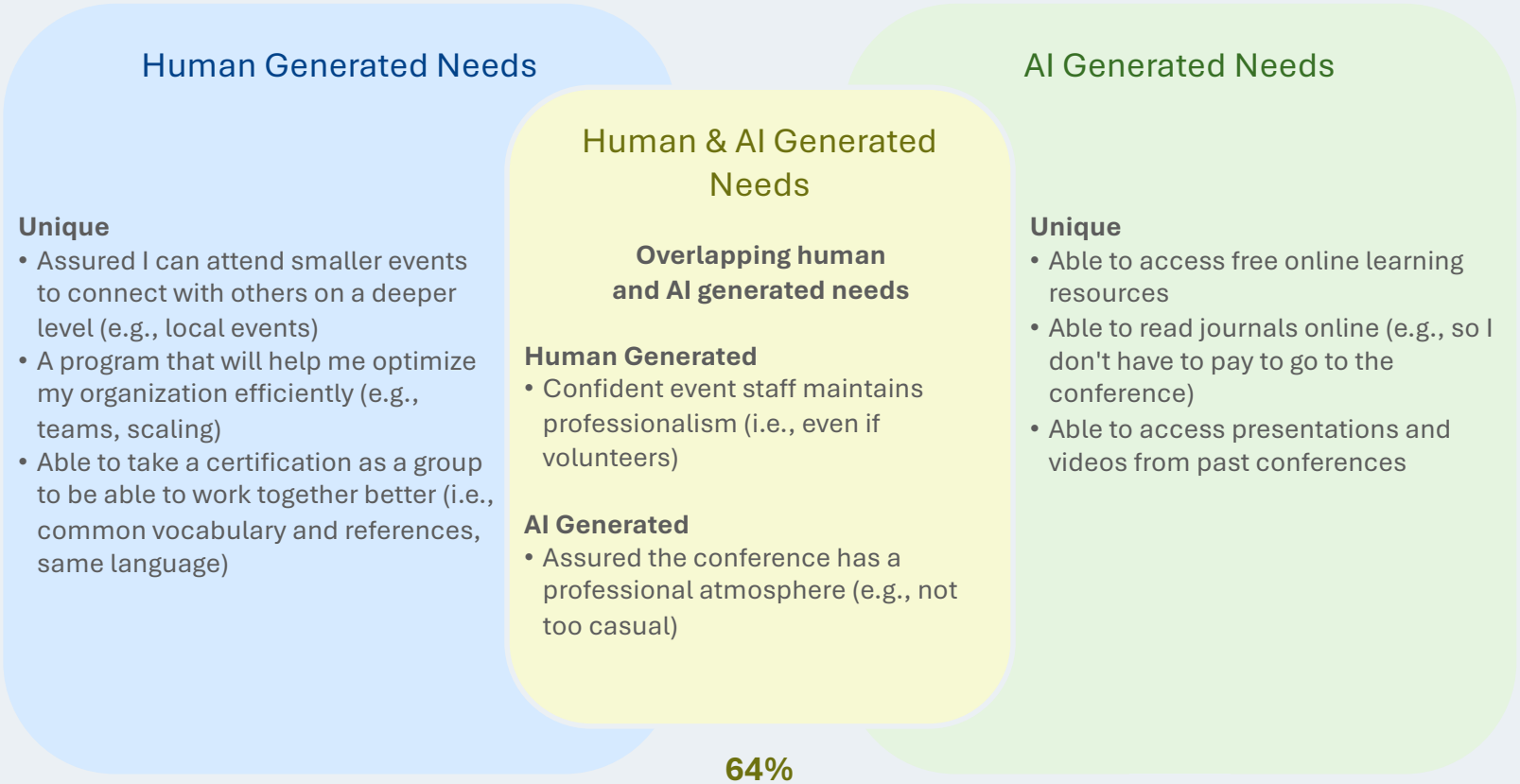
(N=106)

- An online survey to quantify areas of focus
- Measure each need on importance
- Benchmark the market on its performance/ ability to deliver on each need

Interview transcripts were analyzed by humans and the fine-tuned LLM to identify customer needs

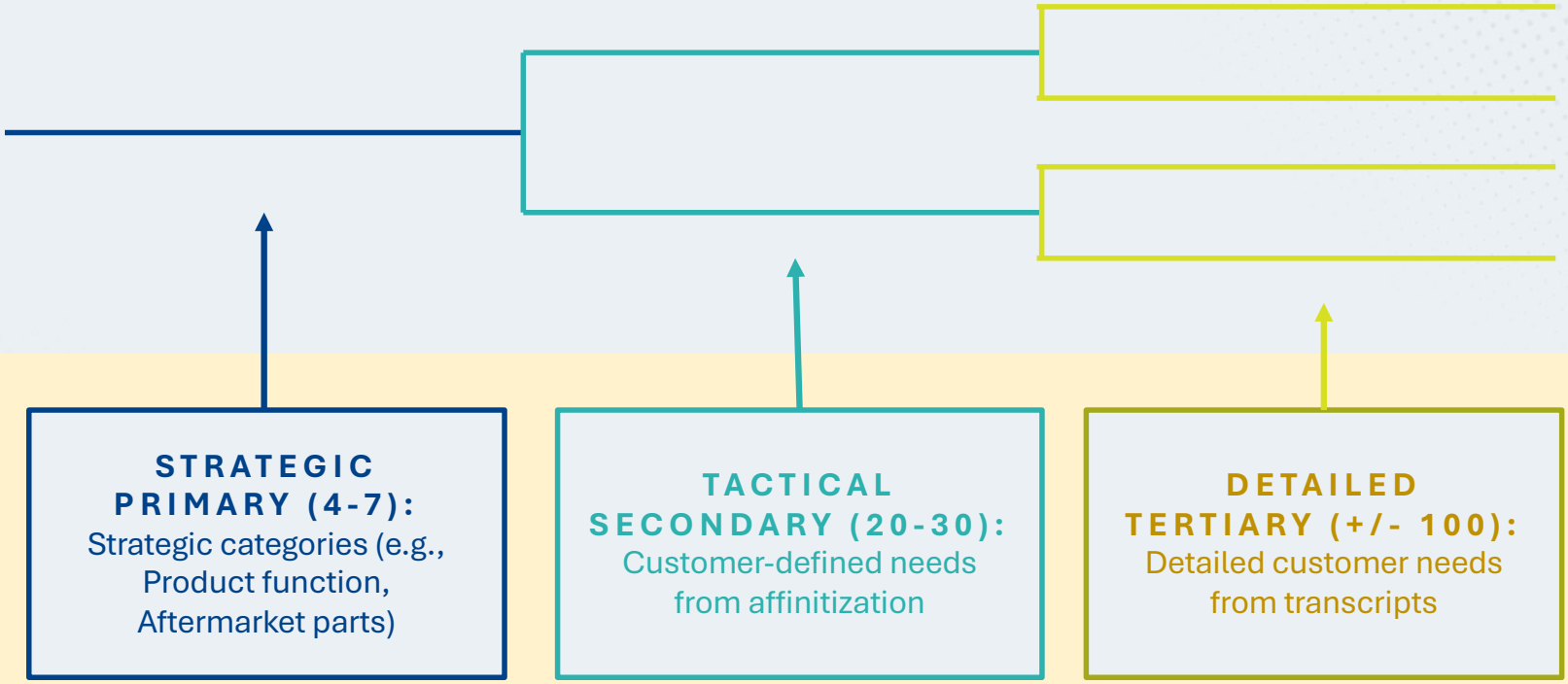
115 The blended final list of needs

There is a large overlap between human and AI generated needs



AMS

The needs hierarchy facilitates effective prioritization and activation of VOC needs

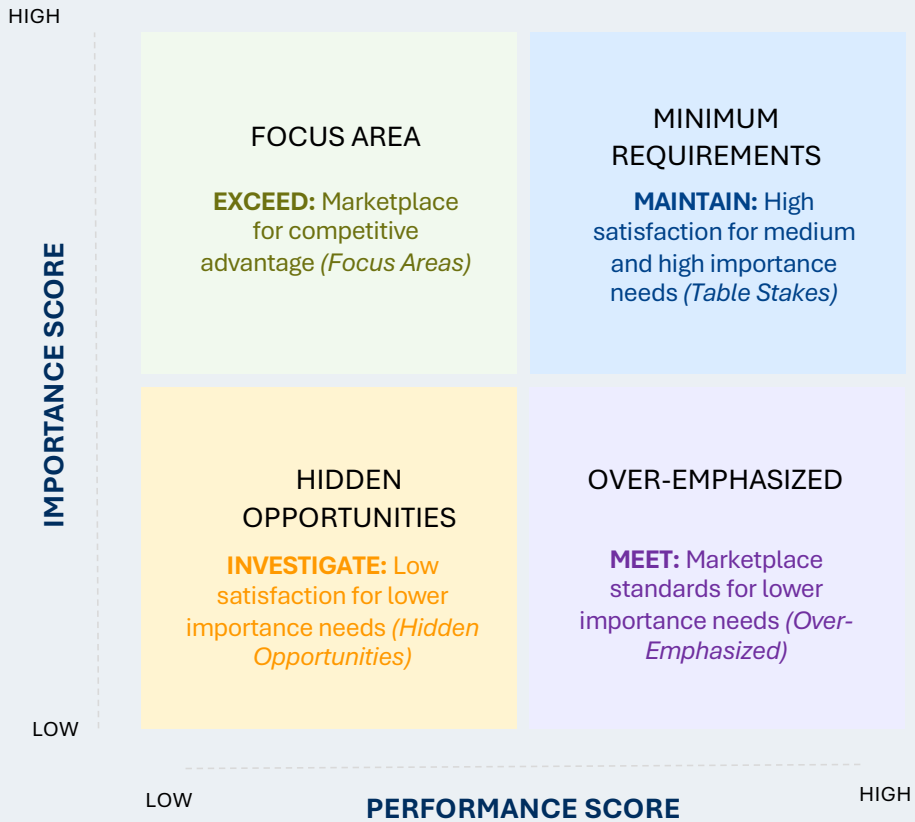


STRATEGIC PRIMARY (4-7):
Strategic categories (e.g., Product function, Aftermarket parts)

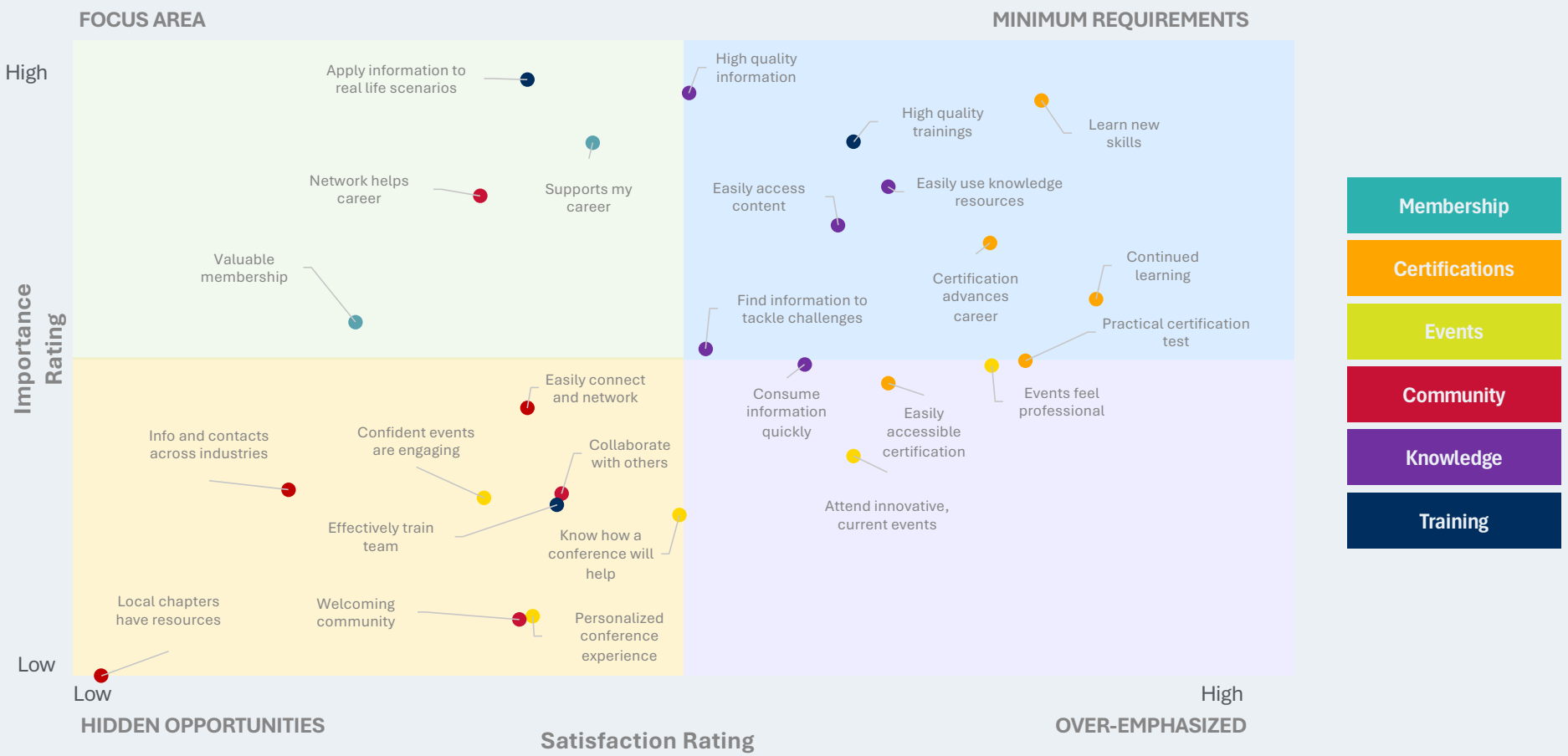
TACTICAL SECONDARY (20-30):
Customer-defined needs from affinitization

DETAILED TERTIARY (+/- 100):
Detailed customer needs from transcripts

We used a choice-based method (MaxDiff) to understand which needs are most ripe for innovation



Market Opportunity Matrix: Overall



Membership
Certifications
Events
Community
Knowledge
Training

Note: Needs have been shortened from text seen in survey. Please refer to the unabridged list of needs here.

Source: AMS survey with 106 academics, practitioners, service providers, and students

Hidden Opportunities: Community, personalized events, and career-focused collaboration could represent future opportunities for disruption

Providing a sense of **community** is a potential area for market disruption, specifically as it relates to collaboration and networking.

Events should be **personalized and applicable**, highlighting how attending can advance careers

Many of the nuanced needs related to community and networking were **found only by the Fine-Tuned LLM**

A **community for product leaders** who are between jobs

Able to **break down barriers and pave the way for others** (e.g., in my field, for women in leadership roles)

Able to easily switch between sessions if I feel I'm not getting enough **industry and career specific value**

Able to **network with both for-profit and non-profit organizations** at events

Able to interact with the people who are **shaping the future of the industry**

Able to join an association that **values my career goals** (e.g., Able to get my paper published, able to guide clients for consulting services)

and many more

What did we achieve?

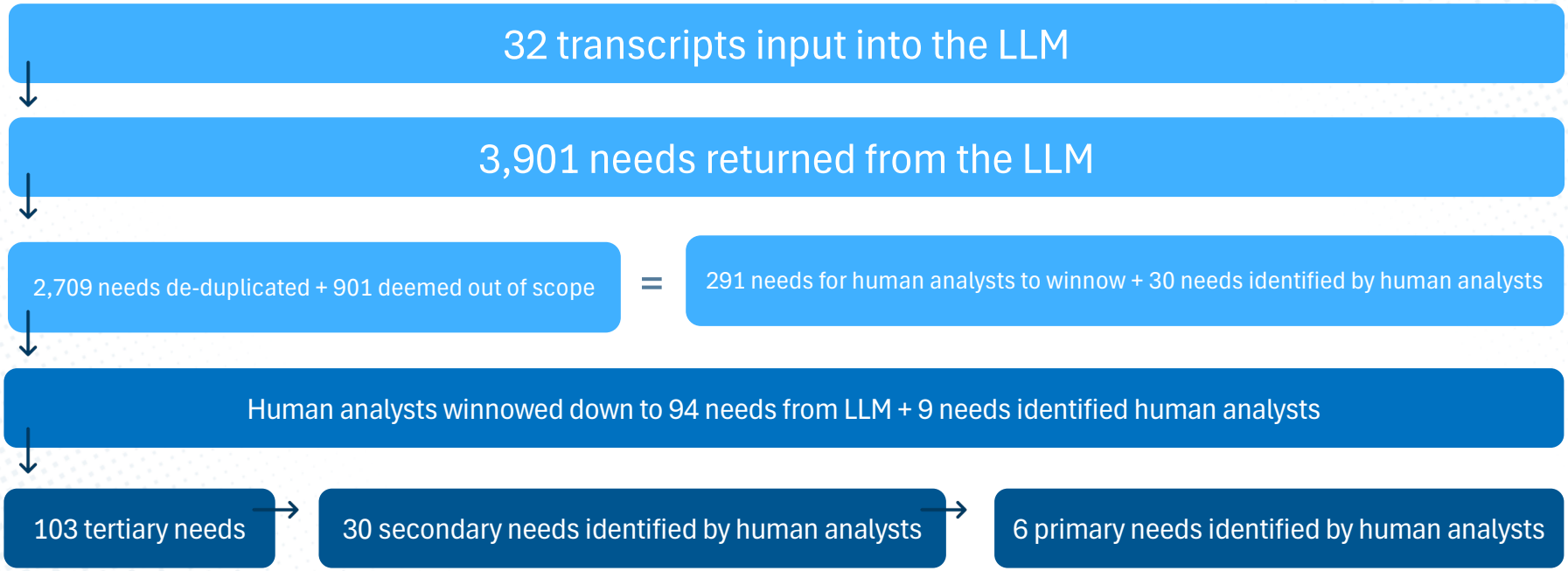
1. A comprehensive needs hierarchy
2. Needs human analysts missed, which allowed for a reframing of “community” opportunity for disruption
3. Priority needs by segment of interest
4. Results in weeks instead of months

Case Study 3 :

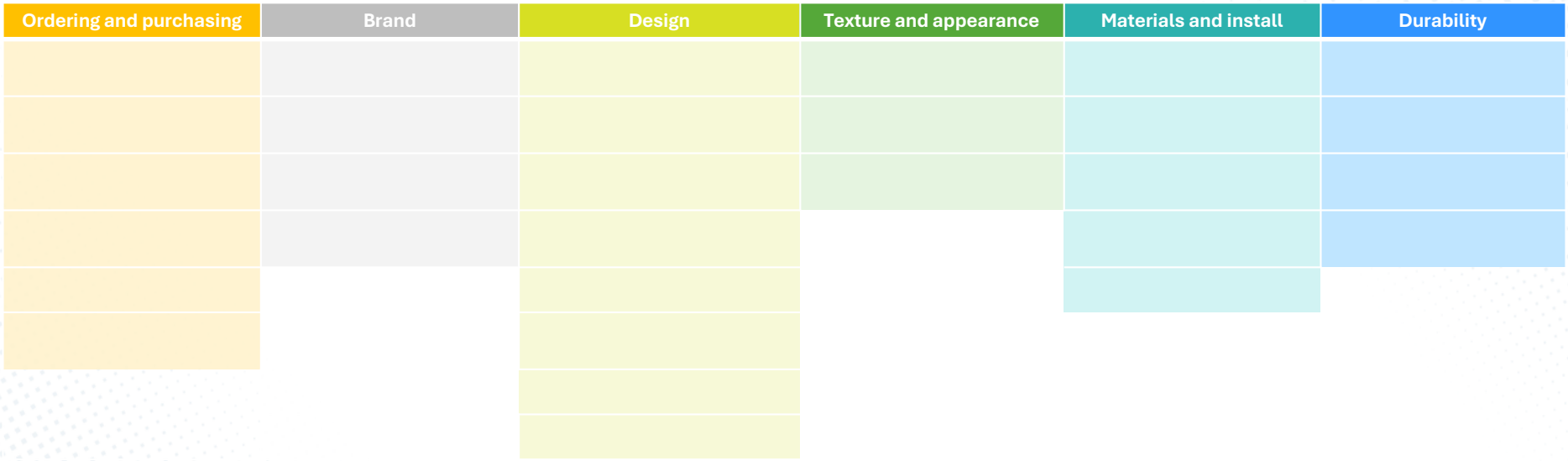
Composite Siding

Can AI can deliver a comprehensive list of detailed customer needs on non-VOC customer conversations?

The LLM read 32 transcripts from prior concept testing study and generated 3,901 needs; human analysts supplemented the effort



The LLM identified the detailed needs, allowing analysts to focus on structuring 30 secondary and 6 primary needs categories



The LLM is comprehensive, and its output is enhanced by human analysts. Of the 103 unique, detailed needs identified from interview transcripts, 91% were produced by the LLM, and 9% by humans

1. The LLM **provides sufficient detail to form robust secondary-level needs** for measurement
2. The LLM can **extract a complete list of customer needs**, in customer' language from conversation
3. In this instance, the LLM was able to extract a robust set of needs from concept testing interviews, which are different from traditional exploratory needs-gathering interviews. The LLM was able to **infer and formulate needs** from interviews focused on prototypes

The LLM successfully identified different types of needs

FUNCTIONAL

The practical, task-oriented requirements that customers expect a product or service to fulfill. They reflect the core "jobs to be done"

UNIVERSAL

The fundamental human needs that cut across industries and demographics. These are consistent, deeply rooted motivations—such as the need for safety, connection, and control

EMOTIONAL

The feelings or psychological states that customers seek to achieve or avoid when interacting with a product or service.

NICHE

Specific requirements or preferences unique to a particular customer segment, use case, or context

Similar themes surface in both the concept test study and the AI-powered VOC pilot

Theme	Concept test	LLM
Appearance	✓	✓
Curb appeal	✓	✓
The **Purchase Process**		✓
Selection	✓	✓
Brand		✓
Durability	✓	✓
Installation	✓	✓
Reputation	✓	
Concept Preference	✓	

How does the LLM compare to traditional qualitative research and analysis?

Significant reduction in timeline

- Can save 4-6 weeks if using pre-existing data
  - No screener or discussion guide to draft
  - No need to recruit and interview respondents
- Reduces analysis and reporting time

Less resource-intensive

- Allows analysts to spend time on value-added tasks
- Allows team to investigate multiple data sources spanning multiple areas to extract customer needs on more than one category

A mix of new and expected output

- Uncovers a comparative amount of needs that are emotional, functional, universal, and niche
- Uncovers similar themes
- Gets into all corners of the data for niche insights

Given the original qualitative study was a concept test, and not a traditional VOC interview, highlights the LLM's ability to distill down verbatims into customer needs. With pre-existing data, this method can produce a similar output in a much shorter, and less resource-intensive, timeline. **This method, with the right inputs, is well suited for VOC**

The LLM is revolutionizing VOC needs gathering

Optimized for a myriad of data sources

- Primary research including interview transcripts, call center data, online communities, survey open-ends, and sales notes
- Publicly available data including social media, blog posts, and forums

Fast, efficient and scalable process

- Arrive at a robust a set of customer needs faster than ever before
- Process massive datasets without bias or fatigue
- Aggregate several data sources in a single study

Unparalleled ability to find insights

- Extract niche insights from frequently overlooked hidden corners of the data
- Capture subtle patterns and emerging trends
- Reveal customer pain points and needs that go beyond top-of-mind themes

More comprehensive than ever before

- Surface important customer needs elusive to the competition
- Identify all categories of needs
- Equip your team will objective data and customer empathy

Stay ahead of the curve.

Scan to explore AMS resources and keep up with the latest in AI for VOC and market research.

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