White paper

The Signal-Driven Marketer

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Version 1.0

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Introduction and definition

Traditional marketing campaigns often use simplistic targeting, broad segmentation models, or basic propensity scores designed to achieve company-centric sales objectives rather than customer needs. The result is frequently ineffective; company goals aren't met, and customers ignore the outreach.

Signal-driven marketing takes a different approach. Marketers listen for indicators of customer intent, or signals, within the data. Signals can be explicit or latent. **Explicit signals** are clearly visible actions that a customer takes—facts that are directly observable in the data. These signals are often called event triggers because they can trigger a marketing response. For example, a purchase transaction reveals a specific need, or clicking a link suggests intent.

Latent signals, on the other hand, are inferred insights from models running against vast quantities of data across multiple dimensions. Latent signals can be found in transactional data and derived attributes. Perhaps most importantly, they can also be hidden in voice-of-the-customer data sources, including voice-to-text from contact center calls, customer correspondence and social media interactions. Advanced AI models are used to detect latent signals, enabling marketers to act proactively. The result is customer communications that are relevant, timely, and focused on helping customers achieve their tasks or engage with the brand.

Signals are produced when AI and language models detect the customer has significantly deviated from their normative behavior or status. Signal-driven marketers focus their customer contact efforts when these signals are at their peak and use them to proactively communicate with these customers and address the opportunity or task represented by the signal.

Teradata's unified customer experience (CX) solution delivers scalable customer intelligence framework that supports signal activation across marketing technologies. By unifying data, analytics, and AI, Teradata empowers signal-driven marketers to personalize experiences, optimize engagement, and drive meaningful outcomes.

Understanding signal-driven marketing

Moving beyond traditional campaigns

Marketers have traditionally built campaigns by selecting a target audience. Selection criteria are defined and queried against data in a structured database to produce an initial count. Additional selection filters are applied until the desired audience size is reached. This reactive approach means only customers who match certain kinds of relational data make it into the segment. Furthermore, it misses important signals available in unstructured data.
Signal-driven marketing modernizes this approach by:

- Detecting behavioral triggers through AI and language models
- Identifying intent using both structured and unstructured data
- Scoring customer signals to determine urgency and relevance

Historically, many marketers used event-based triggers within structured data sources (e.g., "customer made a transaction") to initiate marketing efforts. Today, AI and language models enhance marketing approaches, enabling semantic search across vast datasets of semi- and unstructured data.

Voice-of-the-customer data sources are critical for detecting signals. Automated speech recognition (ASR) converts voice (e.g., call center conversations) into text, while written sources, including call center notes, emails, chats, surveys, correspondence, and social media comments, provide additional context. These interactions often represent the most direct and candid communication between customers and businesses, yet many marketers fail to capture, translate, and append these valuable signals into their marketing strategies.

Leveraging language models and AI

Language models bring all data sources in play to find unique customers who may not show up in event triggers or criteria-based segments derived using traditional transactional data. Marketers use natural language to indicate the signals they're interested in, and a language model creates the vectors and embedding scores to find customers whose behavior aligns with those signals. The good news is that the natural language prompt doesn't need to be an exact match—a semantically relevant phrase is enough for the model to identify a match. After filtering out the noise, nuanced signals can be detected, including:

- Dissatisfaction expressed in a customer service call transcript
- Negative sentiment detected in an email exchange
- Subtle patterns in product browsing behavior suggesting increased intent to buy

Using AI for signal-driven marketing does not generally require large language models (LLMs). Smaller, task-specific language models (LMs) are adequate—even for high-volume needs—and come at a lower cost. As marketers develop their AI strategies and assess the data analytics required to meet broader business goals, an effective inference-tiering strategy can help right-size the requirements. By running smaller, task-specific language models on a parallel database CPU—rather than incurring the cost and delay of accessing external GPUs—signal-driven marketers can score millions of signals and publish results to activation workflows using the parallel database they've already deployed. This enables timely action while the customer's need is still active. Teradata's customer intelligence framework streamlines this process, making it easier to apply AI in signal-driven marketing to support customer outcomes.

Benefits of signal-driven marketing

Building the customer's trust

By following up on strong signals that reflect customer needs—rather than simply pushing another product—signal-driven marketers can unlock two important benefits:

- **Proactive customer engagement:** Companies can respond to customer signals before issues escalate, reducing the need for customers to initiate contact (e.g., by calling to to complain or submitting a service ticket). This leads to lower support costs, improved customer retention, and a better overall customer experience.
- **Increased marketing efficiency:** As customers recognize that communications from the company are consistently relevant and signal-driven, they begin to trust that brand messages are worth their attention. As a result, engagement improves across the board—including higher email open and click-through rates, stronger cross-channel follow-up, and increased social media engagement. At the same time, marketers can reduce costs by excluding low-likelihood customers from campaigns.

Financial services	Retail	Healthcare	Travel	Telco/media
Tap-to-pay card issues	Influencer potential	Billing disputes	Travel disruption impact	Churn risk
Free compliant	Buyer's remorse	Rx adherence	Looking but not booking	Needs-based upgrade
Mobile app vs. web behavior	My friend got an offer I didn't get	Social detrimants of health	Next-best offer to new destination	Network service quality concern

Figure 1. Common signals by industry

From signal detection to real-time personalization

Activating signals as a service

Defining signals and scoring customers against them is just the first step. Companies can't address a customer issue or opportunity until the signal is activated in a channel. Teradata's customer intelligence framework provides end-to-end capabilities for the signal-driven marketer—from organizing structured and unstructured data into usable dimensions, to using statistical and neural network models to isolate signals, to mapping those signals to customer intent and activating them in customer-facing interactions. Teradata supports the full signal lifecycle: creation, storage, integration, and management.

Signal activation happens through an open and connected publish/subscribe ("pub/sub") framework, enabling seamless integration of signal analytics into marketing automation and real-time decisioning engines. The entire signal-as-a-service flow can be automated—from detecting signals in structured and unstructured data, to generating vector embeddings via language models, to publishing signals to a signal table, and finally to subscribing and consuming those signals across the martech environment.

To activate signals, they are published to an open, accessible data table. Each record includes the customer ID, signal name, and signal strength score. Signals are also added to each customer's profile in a Customer 360 table as attributes that can be easily used across the marketing technology stack. APIs connect these tables to marketing automation platforms, allowing those systems to subscribe to changes in signal data.

Campaign management

A campaign management or email marketing cloud can subscribe to the signal table and automatically add customers to a campaign when new signals are detected. Signal scores can also be used as selection criteria for batch campaigns, enabling marketers to select customers with the strongest signal scores. Signal-driven marketers should optimize messaging and contact strategies across email, web, mobile, call center, and in-person channels to ensure a consistent customer experience.

Customer journey analytics

Signals can be used as features by data scientists in AI and predictive modeling. For example, a strong signal score may be a key input in a clustering algorithm used to find like-minded customers. Customer journey analytics—including path analysis—can use signals to understand what behaviors precede a signal and what actions follow it.

Real-time decisioning

Given the urgency of many signals, real-time decisioning and personalization engines—such as Teradata's Vantage Customer Experience (CX)—are essential within the pub/sub framework. Signals often represent critical moments in the customer journey or task-resolution process. Including them in the decisioning process ensures that high-priority signals rise to the top of the message arbitration queue.

When customers engage through inbound channels, such as mobile apps, websites, call centers, IVRs, ATMs, kiosks, or in-store staff, real-time decisioning engines like Vantage CX determine the next-best action or message to present during the live interaction. Vantage CX can also monitor live data streams for signals and trigger outbound notifications with the appropriate next-best action. Over time, the system learns, using attributes in the Customer 360 profile, which message to present to a customer based on a given signal and signal strength.

Teradata supports the full signal lifecycle: creation, storage, integration, and management.

Conclusion

Signal-driven marketing, powered by Teradata's customer intelligence framework, represents the next evolution in customer engagement. By leveraging real-time signals from structured, semi-structured, and unstructured data and AI analytics, signal-driven marketers can move beyond product-push campaigns to a truly customer-centric approach.

With Teradata's AI-powered architecture, signal-driven marketers can:

- Identify intent in voice-of-the-customer data
- Leverage existing infrastructure to deploy AI at scale
- Activate AI-driven signals in their martech environment, enabling real-time decisioning
- Reduce marketing waste and increase efficiency
- Proactively deliver a meaningful customer experience

This AI-driven, CPU-centric strategy enables the signal-driven marketer to engage smarter, faster, and with a greater focus on customer satisfaction, ensuring each customer interaction is relevant, timely, and impactful.

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