



A Pharma Giant Leverages SmartBots' Data AI Agent For Their Sales Team



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Executive Summary

In late 2024, a multinational pharmaceutical powerhouse embarked on an AI journey to boost its business outcomes in the crowded and competitive drug market. The company, one among the top global drugmakers, deployed Agent V, an AI-powered virtual agent developed by SmartBots.

Their primary goal was to ensure that more new patients benefited from the various drug treatments. They intended to improve their sales team's ability to meaningfully engage medical personnel and share accurate information about their products in real time, thus promoting wider adoption of their drugs. By leveraging a Generative AI solution, the pharma titan equipped its sales team with real-time insights and on-demand knowledge, resulting in a faster, data-driven approach to engaging healthcare professionals (HCPs), improved sales performance metrics, and elevated operational efficiency across the organization.

Agent V gives medical representatives instant answers to complex product performance questions and key sales queries. This case study outlines how the pharma company's Indian subsidiary, a leading innovator in healthcare, identified the challenge, why it decided on a Gen AI solution, how they chose SmartBots as their partner, and how SmartBots designed and implemented Agent V.

The Client

The client is one of the world's largest biotech and pharmaceutical companies. In India, their presence spans over 60 years and boasts a diverse product portfolio across major therapy areas like Oncology, Hematology, Ophthalmology, Neurology, and Infectious diseases.

The company uses a decentralized region-based model: across India, their sales organization is divided into multiple regions, each managed by a Regional Head (RH), with several medical representatives (MRs) in their team. This model gives them the agility to respond to local customer needs faster and more efficiently while ensuring broad coverage of healthcare providers nationwide.

The company stands at the forefront of the pharmaceutical market with a strong portfolio, an innovative operating strategy, and a patient-centric vision.

The Challenge

With the right drug portfolio and a motivated sales team, the company faced a critical challenge: how to improve its sales team's effectiveness so they could make meaningful connections with healthcare professionals and be more effective in the highly competitive and rapidly growing Indian market.

One major hurdle was information accessibility. The company's portfolio included dozens of drugs, each with complex clinical data, dosage guidelines, payer mechanisms, engagement strategies, and competitive positioning. Historically, MRs might have had to defer answers ("I'll get back to you") or rely on memory and materials, which risks inaccuracies.

Additionally, the company's data landscape was vast and siloed. Critical information was scattered across various systems. This included:

- Payer mechanism data
- Data on new patients
- Sales reps performance data and KPIs
- Historical sales data and healthcare professional (HCP) information in internal systems (e.g., past prescription trends by region or doctor)
- Real-time sales performance data generated daily, stored in dashboards or data warehouses
- Market forecasts and future trend data from analytics reports

The company needed a way to make sense of these massive data volumes quickly and present meaningful, actionable insights to the teams that needed it, when they needed it. Traditional BI tools and static reports were not fast or user-friendly enough for on-the-go queries.

The challenge was clear: equip the leadership as well as the sales team with an intelligent system to retrieve knowledge and insights in real-time and present it in easily digestible forms.

Business Context

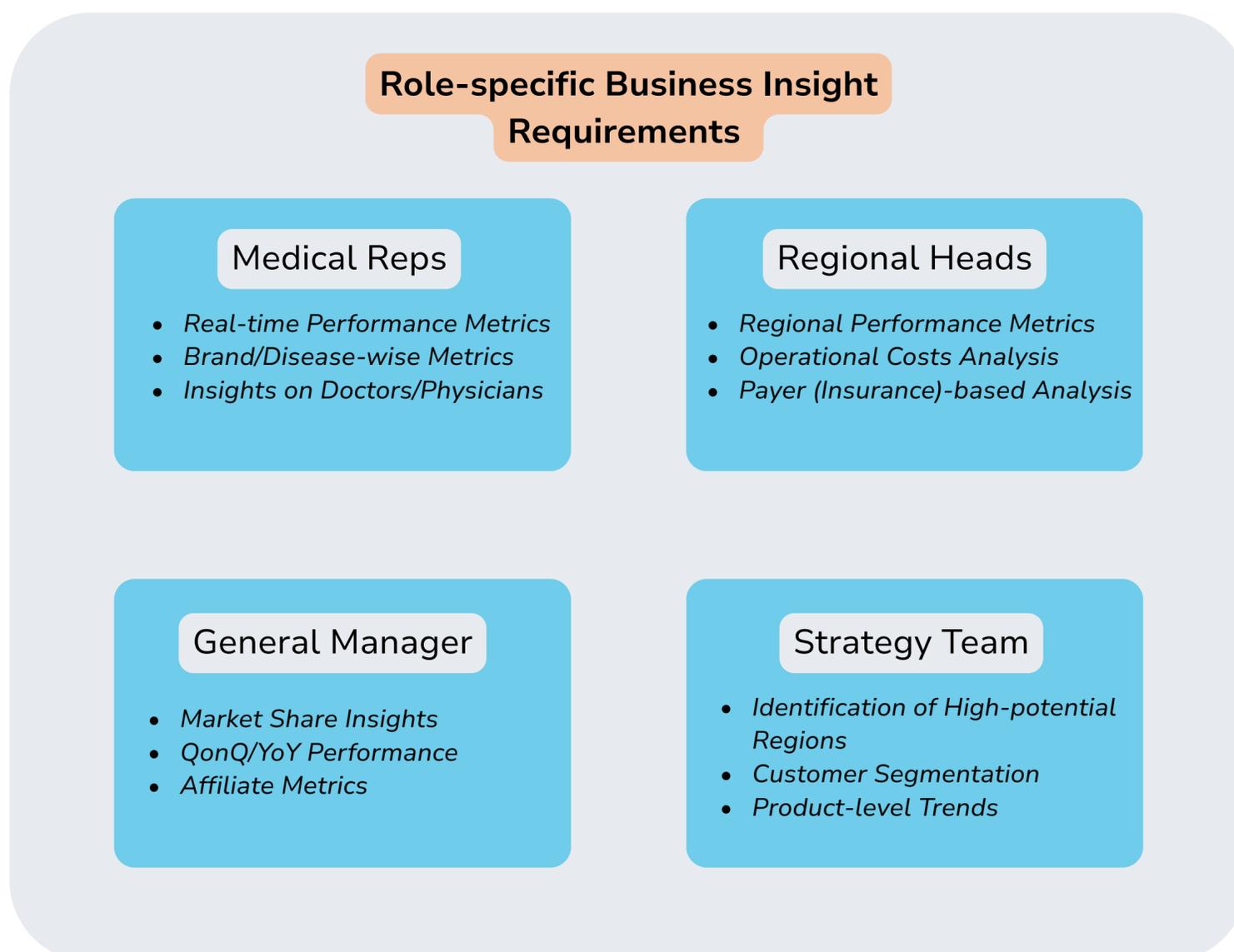
To appreciate the solution, it's important to understand the company's Indian subsidiary's business context and sales operating model. They have embraced a decentralized, region-based operating model for its sales force. This is how it works:

- Each region is led by a RH who oversees the strategy and performance for that region.
- Under each region, there are numerous MRs, typically numbering in the dozens per region.
- Every MR is responsible for visiting healthcare practitioners in their territory. On average, a single MR might visit 10 to 20 doctors per day. Their goal is to educate physicians about the company's therapies and share the latest clinical data, which will ultimately lead to these therapies being considered during new patient treatments.
- These interactions are frequent and span a wide range of discussions.

This region-based model allowed the company to be agile and responsive locally. Each region's performance is measured by various sales Key Performance Indicators (KPIs), such as number of new patient prescriptions, growth of each key brand in that region, doctor coverage frequency, and so on. Regional Heads require up-to-date data on these metrics to guide their teams and adjust tactics.

Before Agent V, obtaining such data was a slow process. An MR or RH might request a report from the analytics team or manually pull data from a dashboard, which meant a delay of anywhere between a few hours to a few days. In a fast-moving market, real-time decision support, or the lack of it, is a game-changer.

In summary, the drugmaker's business context featured a distributed team of sales reps needing instant access to market and sales performance analytics. The company was ready for innovation – they had already pioneered new operating models and had the vision to leverage technology.



Why Generative AI?

As a leading global innovator in the pharma sector, the company recognized that meeting these challenges required more than traditional software – it needed the adaptability and intelligence of Generative AI (Gen AI). Here's why Gen AI was the strategic choice:

- **Natural language interaction:** Most users think and write in plain English. They need not be conversant with complex software to get information.
- **Handling unstructured queries:** Many user questions don't have a straightforward lookup; they require synthesizing information from multiple data points. A Gen AI solution can generate a coherent answer by drawing from various sources.
- **Speed and scalability of answers:** A well-trained Gen AI system can respond in seconds while handling multiple queries simultaneously from different users.
- **Continuous learning:** The company needed a solution that would learn the types of questions frequently asked by users, the style of responses that are most useful, and the likeliest follow-up questions.
- **Dynamic data analysis:** Beyond product Q&A, the company wanted insights into sales performance on the fly. Gen AI can be integrated with databases to generate narrative insights. It can turn raw data into a conversational report, enabling the leadership to quickly query business health without needing analysts.
- **Bridging multiple data sources:** The strength of a Generative AI solution lies in being the single interface to multiple backend sources. The company's data was in different silos (clinical databases, sales systems, etc.). An AI layer could abstract that complexity and fetch and compile information from wherever it resides.

However, the company also knew that Generative AI, in its vanilla form, might not be enough. Off-the-shelf LLMs sometimes produce hallucinations (plausible-sounding but incorrect answers) and might not inherently know the intricacies of the company's proprietary data. The company needed a next-generation approach to Gen AI – one that combined the AI's language prowess with grounded, accurate data retrieval.

Why SmartBots?

After evaluating various options, the pharma giant's Indian arm chose SmartBots as its partner. SmartBots stood out for several reasons:

- **Hybrid approach (Deterministic + Generative AI reasoning):** The key value proposition was SmartBots' approach to combine deterministic logic with generative AI. It uses an LLM for language understanding and generation, but, crucially, it ties into the company's trusted data sources for factual retrieval. This approach mitigates concerns regarding hallucinations and ensures high accuracy. SmartBots had developed this method and proven it in other use cases.
- **Superior engineering and customization:** SmartBots' strength lies in its SmartBots Studio, a powerful configuration platform for building AI agents tailored to an enterprise's needs. The company could define the agent's context, rules, and knowledge base to suit its specific use cases. The flexibility to configure domain-specific context (oncology terms, product details) and guardrails (compliance rules for pharma communications) was a major advantage.
- **Proven Gen AI framework:** SmartBots came with a library of pre-built Gen AI agent templates and experience in deploying them across industries. This meant rapid deployment – and for the pharma leader, this speed was appealing because it promised quick wins and iterative refinement.

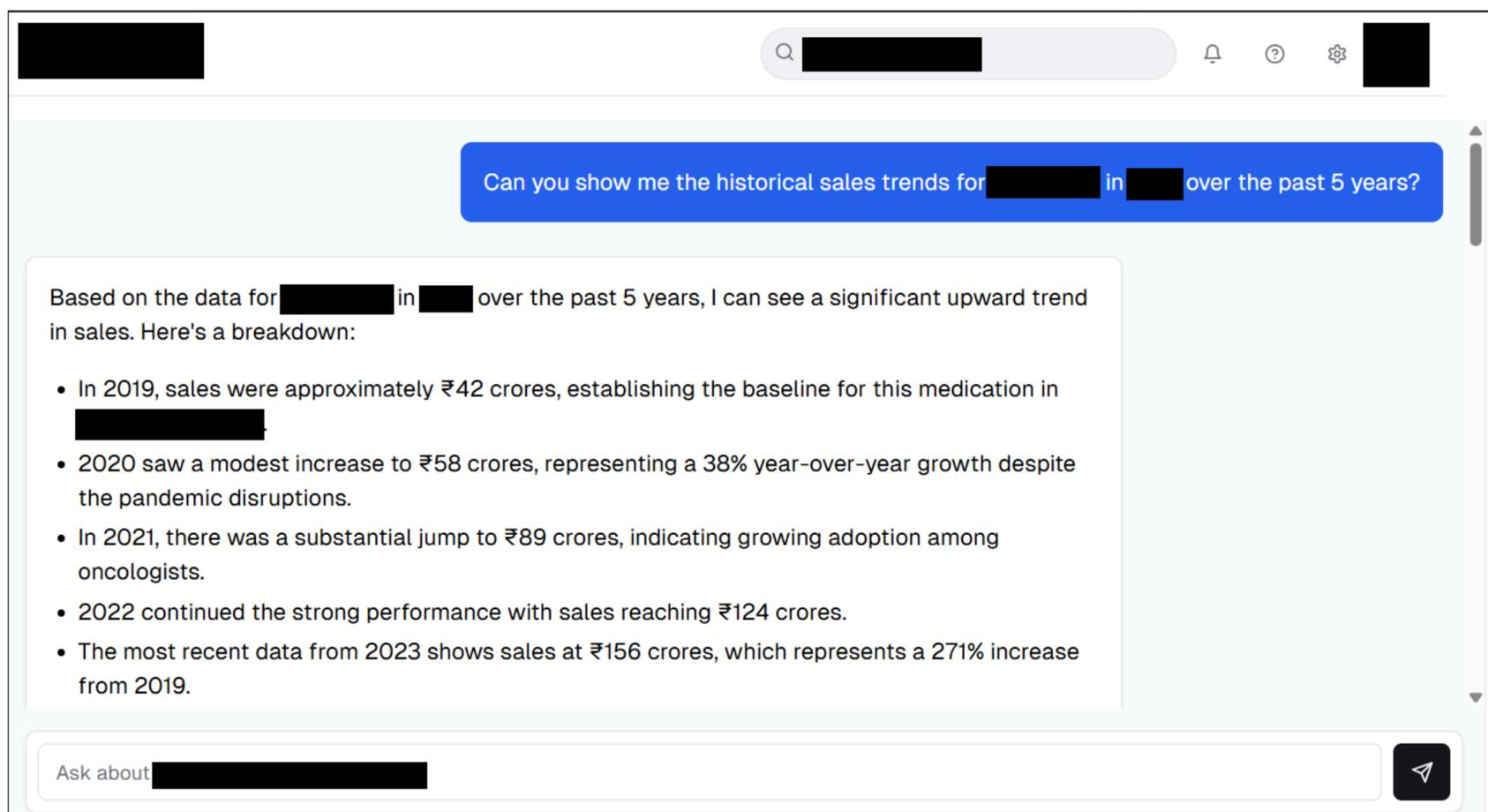
Why SmartBots? (cont.)

- **Seamless systems integration:** Enterprise AI is only as good as its ability to connect with existing data. SmartBots offered smooth, pre-built integrations with enterprise systems. SmartBots' capability to handle custom API integrations assured the company that even bespoke systems could be connected without a hassle.
- **Security and compliance:** In the pharmaceutical industry, data security and patient confidentiality are paramount. SmartBots brought robust security credentials – the platform is ISO 27001 and SOC 2 certified. This focus on security gave IT teams the assurance that an AI agent would not become a vulnerability.
- **Exceptional user experience:** SmartBots designs user-friendly interfaces that promote dynamic conversational experiences. Users communicate via text/voice, with the system adapting responses based on context (e.g., shortening answers for busy users). This focus on ease of use meant that the sales team would find the application helpful rather than cumbersome.

SmartBots brought a consultative, partnership-based approach – understanding the company's business context deeply and crafting a solution that ticked all the boxes: fast deployment, customizability, data accuracy, integration, security, and usability.

The Solution: Agent V – an AI Agent for Sales Operations & Data Analysis

Agent V is a virtual AI agent specialized in sales operations and data analysis. Technically sophisticated and user-friendly, Agent V serves as a digital assistant that can answer questions, provide insights, and offer suggestions in real time. The solution was designed to bridge the gap between the organization's databases and everyday language.

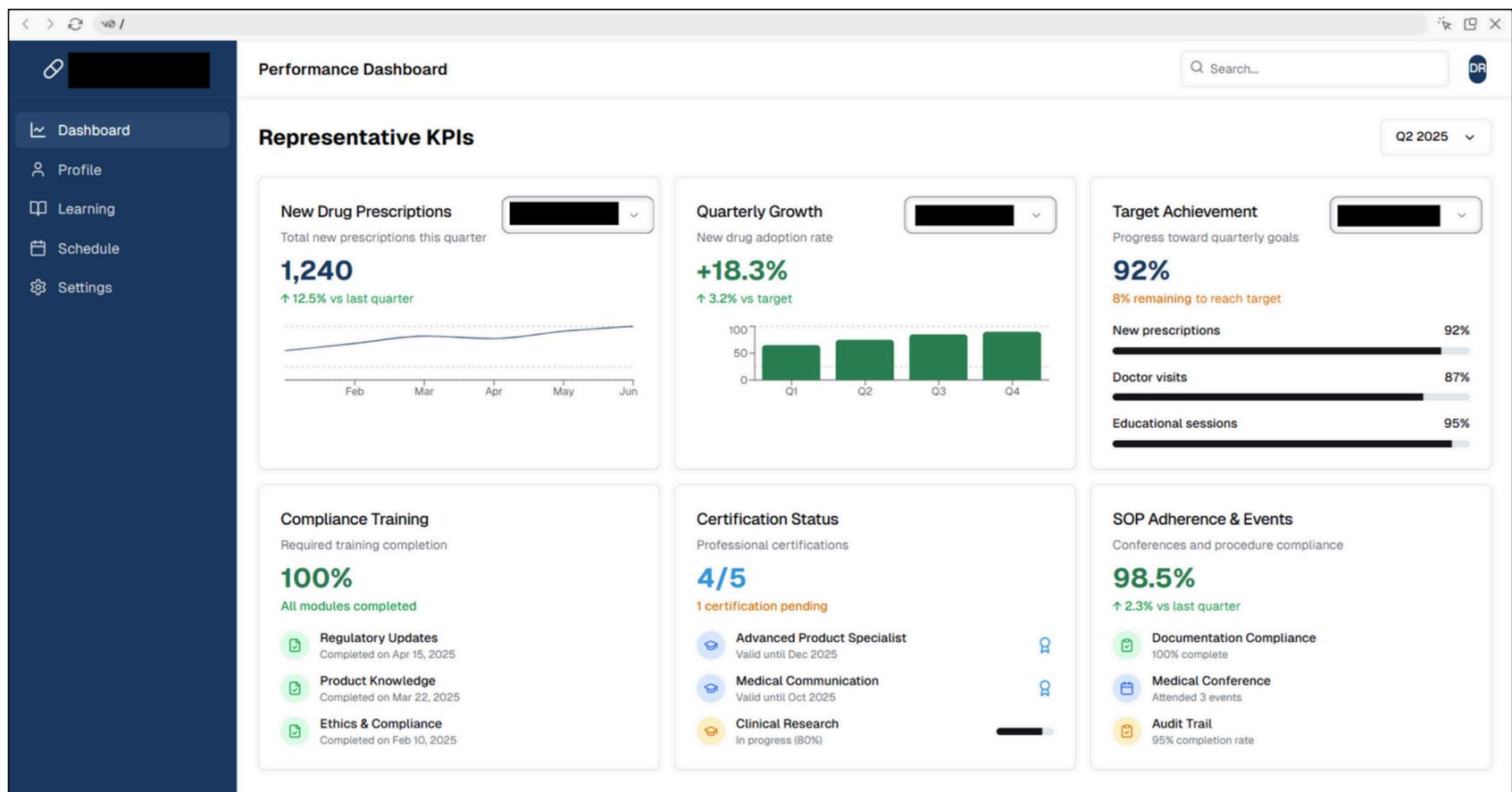


Users can ask queries in natural language, and the agent will respond with data, insights, and visualizations.

How Agent V Works

At its core, Agent V employs a hybrid AI architecture combining natural language processing (NLP) with deterministic database querying.

- 1. Natural language query understanding:** A user interacts with Agent V through a chat-like interface (text or voice). When the user asks a question – for example, “How many new patients were prescribed Drug X in Mumbai last quarter?” – Agent V’s NLP engine parses the question. It uses an underlying Large Language Model to understand the intent, the entities (e.g., Drug X, location Mumbai, timeframe last quarter), and the context behind the question.
- 2. Dynamic SQL query generation:** Once the intent is understood, Agent V’s smart backend generates an SQL query (or a set of queries) to retrieve the needed information from the company’s databases.
- 3. Data retrieval from the company’s backend systems:** The system executes these SQL queries (or other API calls for certain data) against the enterprise databases.
- 4. Generative answer construction:** The raw data retrieved (a row in a table, a number, or a text field) is then handed back to the LLM. The LLM converts that data into a coherent answer in human language. Agent V might respond, for example: “Drug X had 120 new patients on therapy in Mumbai in Q4 2024, a 10% increase from the previous quarter.”
- 5. Multi-turn conversation & context:** Agent V supports follow-up questions in a conversational flow. For example, if the MR asks, “How about in Delhi?” right after the Mumbai query, Agent V understands that the context is still new patients that were prescribed Drug X in the last quarter, but now for Delhi – and it will fetch and provide that answer.



Screenshot of Agent V showing business outcomes under different categories. (Brand names and other identifying details have been masked owing to confidentiality concerns.)

The Differentiator: Using A Blend of Deterministic and Generative AI

The real innovation in Agent V is the blend of two worlds:

- A **deterministic querying layer** that guarantees factual accuracy by pulling the answer from the company's own single source of truth; and
- A **generative language layer** that provides the flexibility and eloquence of natural language, delivering the answer in a comprehensive yet concise form.

This approach eliminates the problem of AI hallucination. Agent V doesn't "make up" facts – it sources them from the database. The result is comprehensive, well-composed human language answers with almost no risk of error or fabrication.

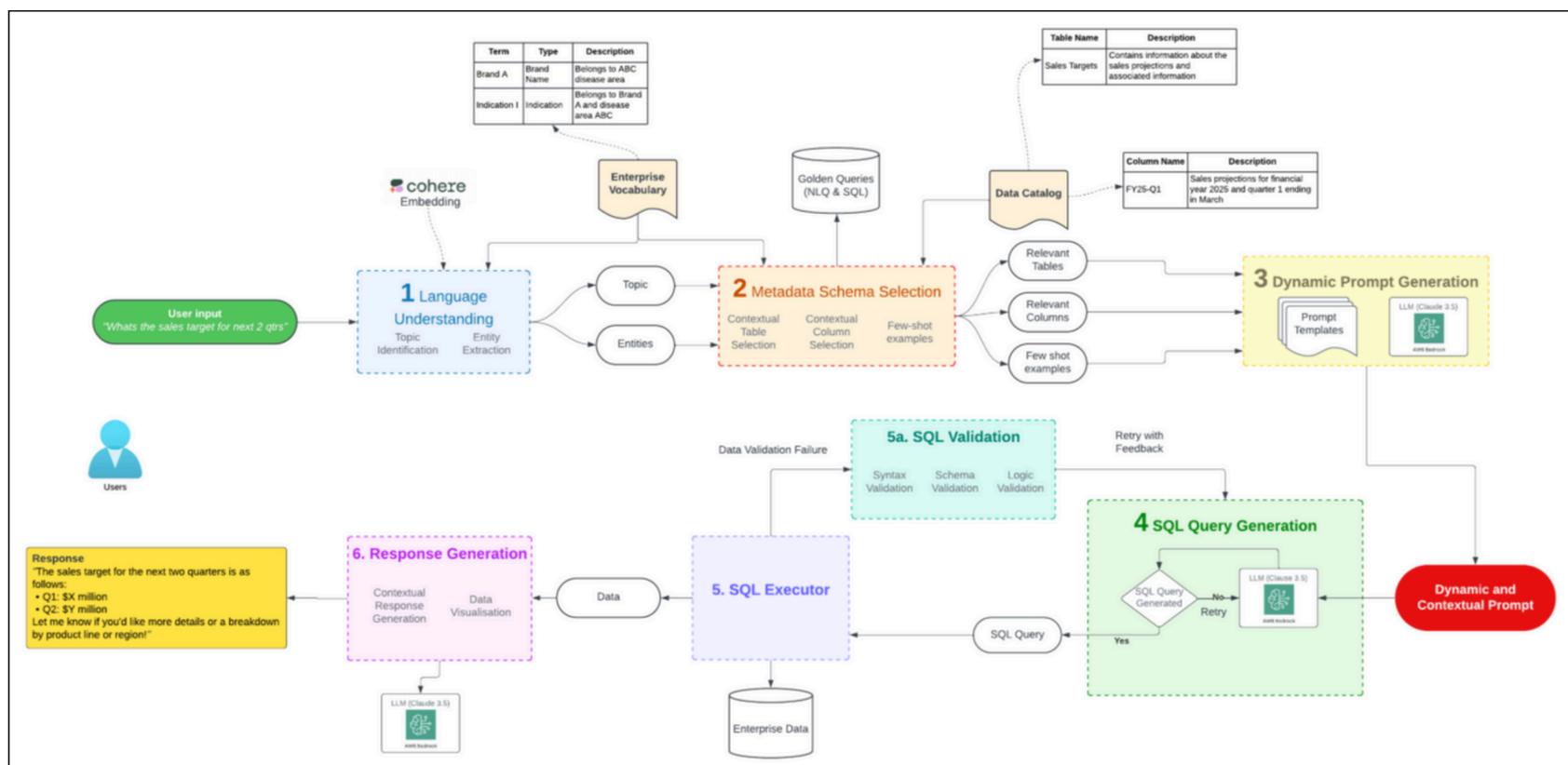


The Technology: a Text2SQL Pipeline

When a user asks Agent V a question, the input text is processed by the SmartBots Text2SQL pipeline. This pipeline comprises a combination of embedding-based topic classification, custom entity extraction, dynamic prompt engineering, and multi-step validation, leveraging both traditional NLP and Generative AI models to ensure accurate, context-aware responses. The user's query goes through the following steps:

- 1. Language understanding:** This comprises two aspects: intent classification and entity extraction. "Intent" refers to the intention behind the query. "Entities" refer to the objects within the enterprise: e.g., products, parts, industry jargon, acronyms, and so on. Entity extraction is handled by a custom-trained BERT-based model fine-tuned on the enterprise vocabulary. The intent and entities are pre-loaded into the "enterprise lexicon" collected, indexed, stored, and updated by SmartBots beforehand.
- 2. Metadata schema selection:** Having identified the topic and entities in the user's question, the pipeline identifies the most relevant database tables and columns using a metadata catalog. Additionally, few-shot learning is applied by retrieving predetermined examples of natural language queries paired with SQL outputs, providing the LLM with grounded examples to improve generation quality.
- 3. Dynamic prompt generation:** Contextually relevant metadata, few-shot examples, and identified entities are injected into pre-defined prompt templates. The system then uses this dynamic and contextual prompt to guide the LLM.
- 4. SQL query generation:** The dynamically generated prompt is passed to Claude Sonnet 3.5 to synthesize SQL queries. A feedback loop is implemented to retry prompt generation in case of failure or suboptimal results. (Note that SmartBots favors a stateless and model-agnostic design.)
- 5. SQL execution:** The SQL query is validated on three levels: syntax validation, schema validation, and logical validation. If validation fails, feedback is used to regenerate or refine the prompt; successful queries are executed against the enterprise data store.
- 6. Response generation:** The retrieved data is populated into a human-readable response formulated by an LLM; in this case, Claude Sonnet 3.5. The data may also be visualized as a graph of the user's choice.

The SmartBots Text2SQL pipeline is designed to scale across large and complex schemas, thanks to contextual filtering and metadata mapping. Techniques such as custom entity extraction and few-shot prompting ensure high accuracy; and the inherent modularity makes it easy to update entity vocabularies, schemas, or switch LLMs without impacting the overall flow.



SmartBots' Text2SQL Pipeline

Key Advantages of the SmartBots Approach:

- **Ease of use:** Users ask Agent V questions through an easy-to-use application interface. Follow-up prompts are then displayed as clickable buttons. Users can also interact directly through voice commands. It is also designed to be compatible with both TVs and laptops, ensuring a seamless user experience across different devices. Users talk to or chat with Agent V in everyday language (Indian English, in this case) and receive an answer in everyday language .
- **Real-time insights:** A key advantage offered by a SmartBots AI agent is the ability to provide discerning responses on the fly. An MR can relay a complex query asked by their oncologist client and receive a nuanced response right away. An RH can receive regular updates on MR performance. Sales reps can receive tips on areas to focus on to improve their outreach.
- **Consistency and accuracy:** Out-of-the-box LLMs can only achieve single-digit or low double-digit accuracy in an enterprise context. SmartBots has developed a 7-step process to train its agents to understand enterprise “memory” or “context”, making them capable of accurate real-time data retrieval. SmartBots AI agents consistently achieve 100% accuracy on popular queries and 75–85% accuracy on first-time queries within a month of training.
- **Enhanced engagement:** Acting as a useful helpmeet that takes over cumbersome grunt work, Agent V is key to increasing sales personnel’s efficiency, boosting morale, and helping them meet and even exceed their goals.
- **Automatic logging:** All user–agent interactions are automatically logged. Log data can be monitored to provide real-time insights through dashboards that update dynamically as new patterns emerge.
- **Learning and personalization:** Agent V learns from experience. Users can like accurate, relevant responses and dislike incorrect, irrelevant ones. Over time, this feedback helps refine Agent V’s understanding of user expectations.
- **Integration of alerts and actions:** A SmartBots agent can trigger alerts and next steps based on information received. For example, it can send follow-up emails after a sales conference and provide additional information to clients who have expressed interest in specific products or services.

Agent V empowered users to interact naturally with their data and knowledge base. It put a virtual expert in the hands of every salesperson and manager, dramatically reducing the time to insight and improving the quality of engagements.

Outcomes and Results

The deployment of Agent V had a measurable impact. The following key outcomes were observed:

- **Increased therapy coverage:** Following Agent V's deployment, the client saw a significant increase in their drugs being prescribed across all regions, largely due to the assistance that MRs received from the AI agent being translated into enhanced productivity.
- **Improved targeting:** Agent V enhanced MRs' ability to engage with HCPs by analyzing vast datasets to predict prescribing patterns and tailoring personalized pitches based on physician preferences and patient demographics. It also provided recommendations and suggestions based on strategies used by the most successful MRs.
- **Enhanced sales performance KPIs:** Several sales KPIs, such as Prescription Conversion Rate, Call Productivity, and Time to Information saw positive movement.
- **Better data handling and compliance:** Agent V significantly lowered errors in data handling and reporting while ensuring strict adherence to compliance requirements at every stage.
- **Empowered and satisfied employees:** Armed with instantaneous access to information and insights at all times, along with thoughtful suggestions regarding next steps, MRs reported feeling better-equipped to meet their HCP contacts.
- **Data-driven decision-making:** Decision makers, such as Regional Heads, could glance at employee KPIs or revenue performance, get insights, and take business decisions.
- **Business impact:** Since Agent V was deployed, the company has seen smooth sales operations and improved business outcomes.

[Note: Numerical values are not being shared owing to confidentiality concerns.]

To summarize, the pharma leader's partnership with SmartBots and the implementation of Agent V achieved the desired transformation.

Conclusion and Future Outlook

The multinational drug leader's deployment of SmartBots' Agent V AI agent is a compelling example of how embracing innovative technology can address classic business challenges in new ways. The success of Agent V has positioned the drug leader as a pioneer in the use of Gen AI in pharma sales operations. It solves the information availability and asymmetry problem and makes data a live companion.

Looking forward, the future outlook for Agent V and similar AI initiatives with their pharma company client is bright. Some anticipated next steps include:

- **Enhanced capabilities:** Going forward, Agent V will come equipped with more predictive and autonomous abilities.
- **Continuous improvement and maintenance:** Agent V will learn from interactions, refine its logic, and adapt based on user behavior and new data sources, improving accuracy and reliability faster over time.
- **Data-driven workforce:** A wide variety of AI-powered solutions are being discussed, such as AI-powered discovery and influence mapping, personalized outreach with real-time insights, and AI-generated content for scientific discussions and thought leadership.
- **Broader deployment:** Having tried and tested Agent V, the healthcare leader is considering partnering with SmartBots to deploy similar tailored agentic AI solutions, such as demand forecasting & supply chain AI agents.

To conclude, the pharma titan's journey with Agent V underscored a confident and consultative approach to innovation. By identifying the right problem, choosing the right partner in SmartBots, and leveraging Generative AI responsibly, the pharma leader demonstrated how, with vision and the right technology, operational excellence and business outcomes can be accelerated.