

EBOOK

NTT DATA + Google Cloud + denodo

POWERFUL, CHATBOT-ENABLED ANALYTICS

A Solution from NTT DATA,
Google, and Denodo





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CHAPTER 1

THE DREAM OF AI-POWERED ANALYTICS

With AI, and its quickly-growing sibling, GenAI, organizations have the power to not only enhance analytics but also democratize it, so virtually anyone can engage in advanced, self-service analytics simply by asking a question.

This is a powerful dream, since self-service analytics can save both time and money by reducing IT involvement while accelerating time-to-insight.

Unfortunately, the Boston Consulting Group (October 24, 2024) tells us that “only 22% of companies have advanced beyond the proof-of-concept stage to generate some value [from AI], and only 4% are creating substantial value.”

What stands in the way of the other 78%?

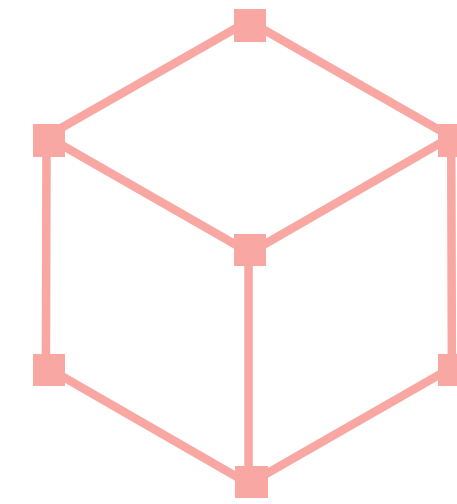
THE DREAM OF AI-POWERED ANALYTICS

The Data Challenge

It all comes down to data: AI-powered chatbot analytics require immediate access to the most authoritative data within an organization.

Unfortunately, this data is often siloed across multiple on-premises and cloud data sources, and it would need to undergo transformation and preparation, such as standardizing the semantics, enriching the metadata with business context, or converting it to vector form, before it can be consumed by a large language model (LLM).

Also, many organizations lack the expertise to create tailored, AI-powered analytics that can meet their unique business objectives.



CHAPTER 2

THE SOLUTION

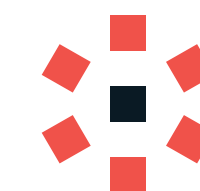
NTT DATA, Google, and Denodo have partnered to create a turnkey solution that facilitates AI-powered analytics while enhancing its power:



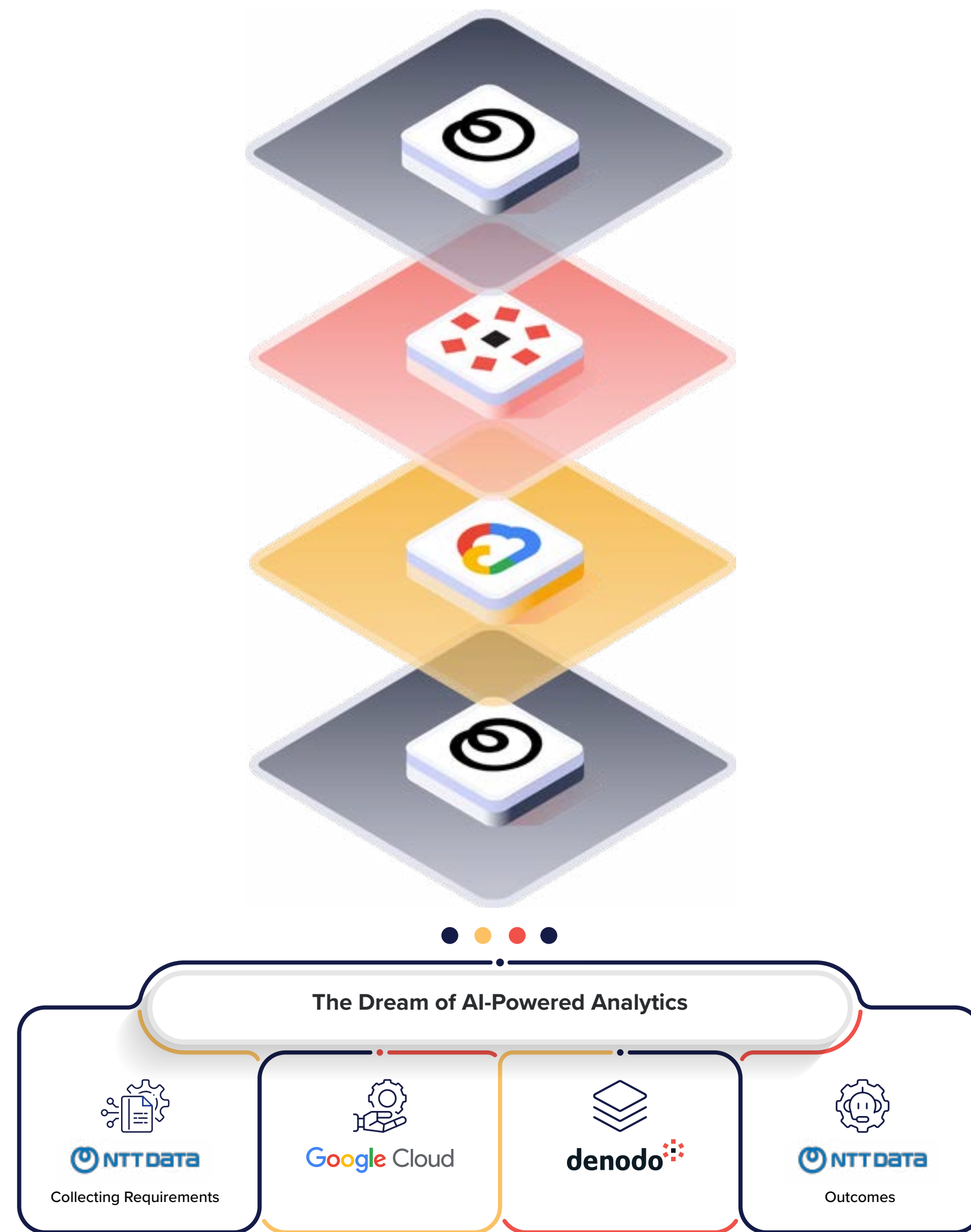
NTT DATA: Works with each client organization to unlock the value of data and AI by making them accessible and turning both into a source of actionable insights that drive business success.



Google: Provides a robust data analytics and AI platform with Google Cloud and other powerful tools.



Denodo: Adds a logical data management layer to Google Cloud, for integration with on-premises sources and other cloud sources, ultimately to provide AI applications with “AI-ready” data.

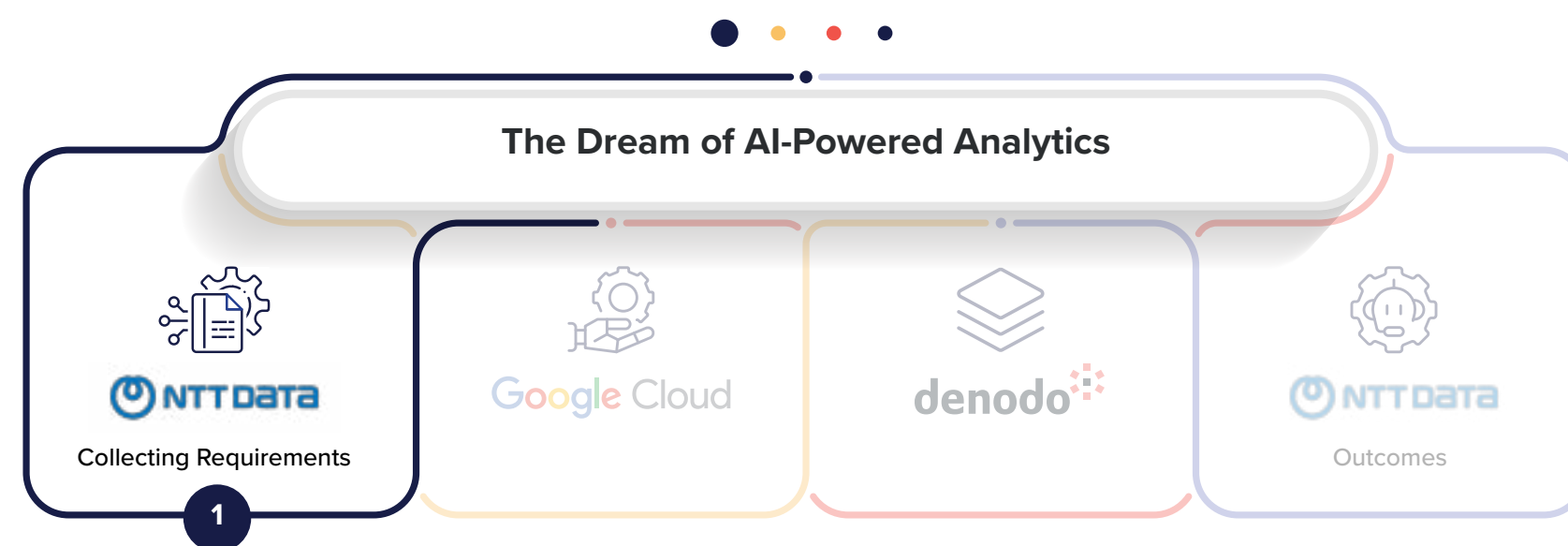


CHAPTER 3

HOW IT WORKS (STEP 1 OF 4)

NTT DATA: Collecting Requirements

NTT DATA has extensive experience in transforming data into strategic assets, enabling companies to harness their data for informed decision-making, optimizing processes, and creating long-term value. With over 600 data professionals in Italy and a global network of more than 10,000 experts, NTT DATA provides cutting-edge capabilities in data and artificial intelligence to meet the complex needs of organizations in an ever-evolving landscape.



Data and AI key Solutions and Services:

- 1. **Data & AI Strategy:** consulting services and frameworks to support the transition to a data and AI-driven organization;
- 2. **Holistic Governance:** consulting services and solutions to ensure the proper management of data, AI, applications, and infrastructure with a comprehensive holistic approach for handling new complexities, achieving cost reduction, and improving performance, while always adhering to compliance and regulatory requirements;
- 3. **Data & AI Ecosystem:** building and managing complex data and AI ecosystems in various environments;
- 4. **Data Experience:** enabling data and AI to communicate insights in an impactful, easy-to-understand, and effective way;
- 5. **AI, GenAI, and Agentic AI:** Offering more than a hundred professionals dedicated to fully exploiting the real value of data while supporting the transformation of all organizational pillars—people, processes, and technology—into new, more scalable systems.



“AI brings an incredible wave of transformation that can either overwhelm us or propel us further. Our team of professionals works in symbiosis with our clients to create value from data using AI, and to support organizations in their journey to becoming data and AI-driven.”

- **Nicola Russo**, VP of the Data & Artificial Intelligence Business Unit, **NTT DATA**

"To accomplish this, we design data and AI architectures that emphasize business value, creating comprehensive ecosystems. These ecosystems empower organizations to scale in every dimension and prepare them to be future-ready."

- **Gianni Parini**, senior data and AI architect of the Data & Artificial Intelligence Business Unit, **NTT DATA**

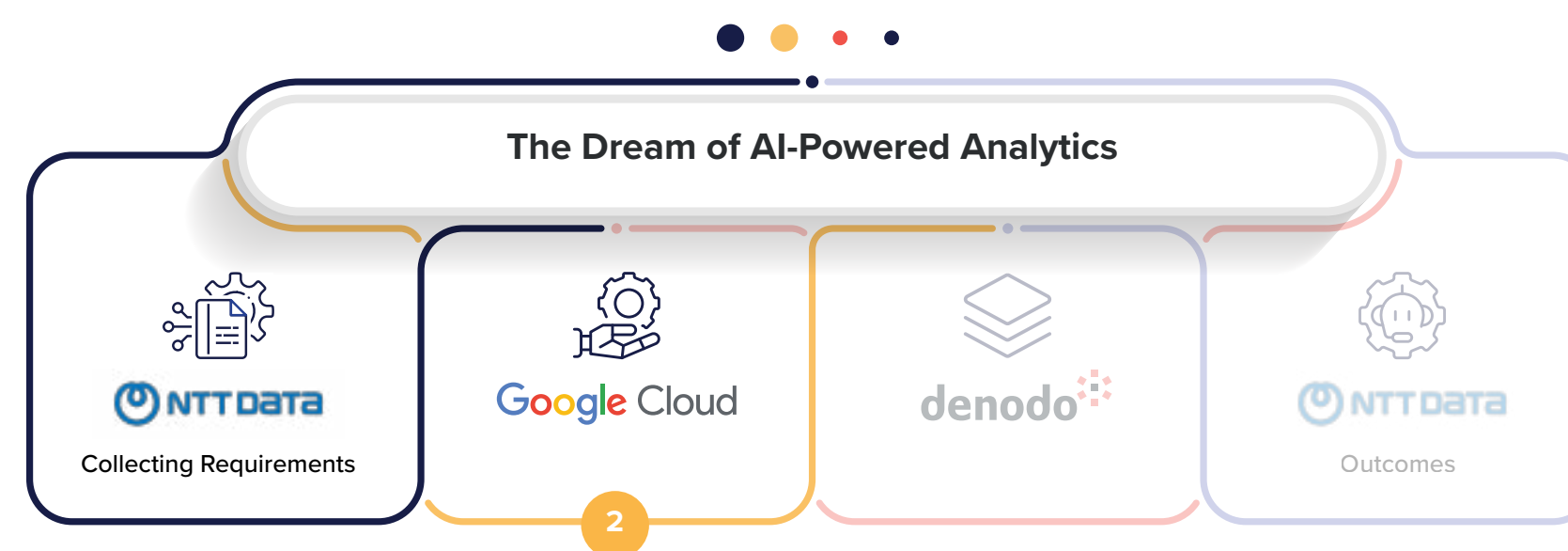
HOW IT WORKS (STEP 2 OF 4)

Google

Google is the heart of the solution. With Google Cloud, Google provides a robust, scalable data analytics and AI infrastructure. Google Cloud is powered by not only graphics processing unit (GPU) processors but also tensor processing unit (TPU) processors, designed by Google specifically for AI-based compute tasks.

In addition, Google provides:

- **Vertex AI**: A unified platform supporting AI/ML and GenAI application development
- **Gemini**: An advanced LLM for text generation, multimodal analysis, and code generation
- **Looker**: A data visualization and business intelligence platform for interactive dashboards and reports



“Google provides the infrastructure, the core data and AI platforms, including the supporting components, to deliver a powerful, dependable solution that can accomplish organizations' goals with ease and proactive security.”

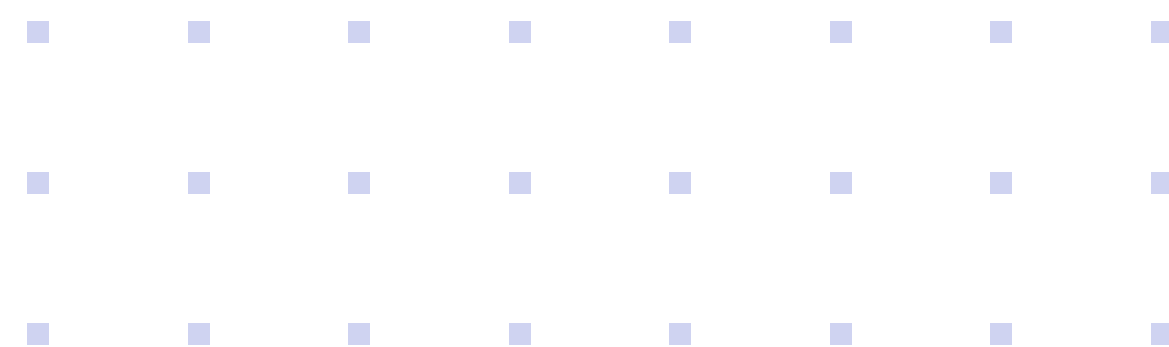
- **Merlin Yamssi**, lead solutions consultant, AI/ML CoE Partner Engineering, at **Google Cloud**.

HOW IT WORKS

Common AI Challenges

The Google analytics infrastructure will handle most of what an organization needs in order to build and deploy an AI-powered, chatbot-enabled analytics application. However, AI implementation plans often present stakeholders with questions along this line:

- What about on-premises data that needs to stay on-premises, due to data privacy regulations that prohibit export?
- And what if I also have some data in other cloud systems, and I don't want to move it out of there?
- And what about getting all enterprise data ready for an LLM to consume? I still have data in several different formats.

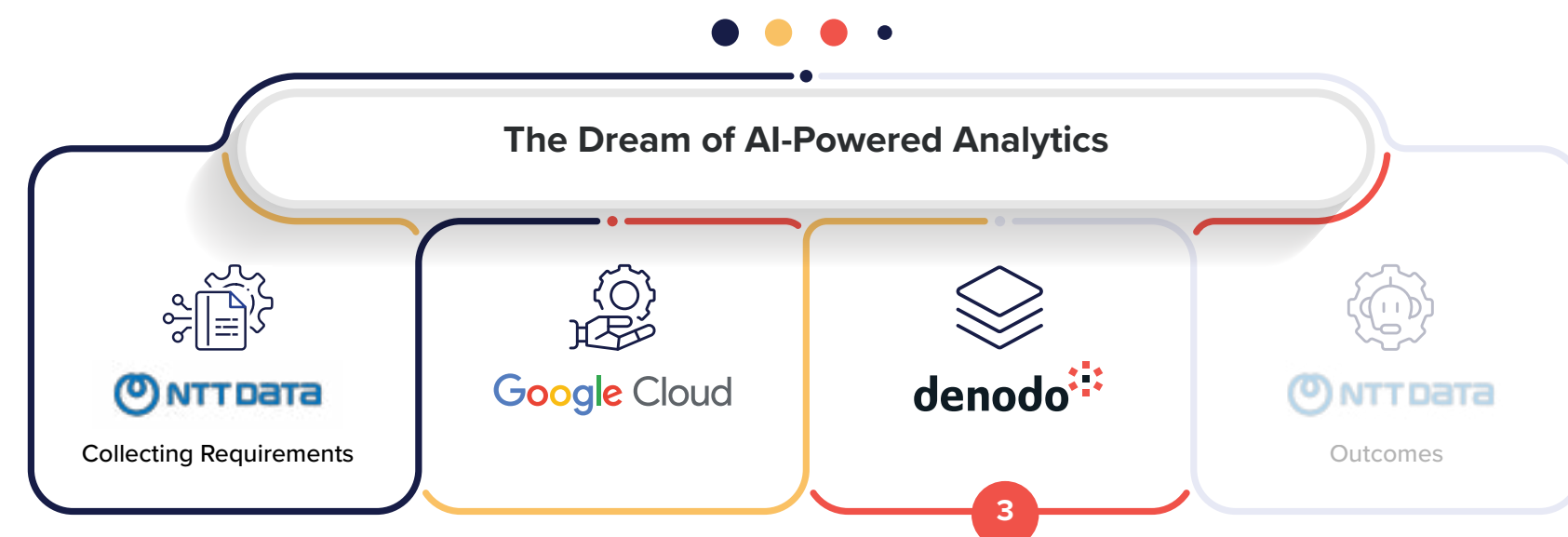


HOW IT WORKS (STEP 3 OF 4)

Denodo

The Denodo Platform provides an answer to all of the questions on the previous page. It leverages a logical approach to data management, which enables on-demand access to disparate data sources, without replication. The Denodo Platform can be established as a layer above Google Cloud and any other cloud systems and on-premises systems, seamlessly unifying the data.

Because it is implemented as an abstraction layer above the data sources, and because it enables immediate access to the distributed data, it also enables a universal semantic layer that automatically transforms the data into whatever format is required, while also adhering to granular data governance and security policies.



The Denodo Platform offers:

- **On-demand integration** between Google Cloud and on-premises systems, and between Google Cloud and other cloud systems
- **A unified data access point** which shields LLMs, such as Google Gemini (within Vertex AI) from the complexities inherent in retrieving always-up-to-date data and metadata from underlying systems, without the need for data replication.
- **A secure semantic layer**, which provides LLMs with the necessary business context and knowledge such as table descriptions, business definitions, categories/tags, and sample values.
- **Powerful data governance** across all sources, providing LLMs with only trusted, AI-ready data, through retrieval augmented generation (RAG)
- **A full-featured data agent**: The AI-powered Denodo Assistant augments and streamlines data-related tasks. For data engineers, it automatically generates meaningful descriptions and intelligent data enrichment, and for business users, it enables querying using natural language.
- **An AI SDK** that augments the capabilities of an LLM, enabling developers to easily build data products with chat-bot front ends for true self-service analytics: Virtually anyone can simply “have a conversation” with proprietary company data, engaging in advanced analytics without even realizing it.

“Denodo provides an extra layer of connectivity and intelligence to Google Cloud, to incorporate any data that might be in other cloud systems or on-premises data sources, and to do so in a governed, semantically unified way. The Denodo Platform also offers powerful AI-powered tools to make the process of building AI-chatbot-enabled analytics solutions as easy and intuitive as possible.”

- **Paolo Crivelli**, regional technical sales director at **Denodo**

NTT DATA: Comprehensive support, from Data to Value

NTT DATA supports clients through an end-to-end approach, for alignment between business needs and technological solutions, structured as follows:

- **Business and Technical Requirements Definition**
Identifying strategic objectives, desired outcomes, key success metrics, and gathering technical inputs such as data sources, applications, delivery methods, and access levels
- **Data and AI Assessment, and Architecture Design**
Analyzing the client's current data landscape to understand context and needs, and to design a tailor-made architecture leveraging Google Cloud and Denodo services
- **Platform Deployment and KPI Evaluation**
Deploying the solution on Google Cloud Platform with a focus on scalability, performance and evaluating business outcomes through KPI tracking to ensure value realization

During each phase, NTT DATA will leverage its deep expertise in both Google Cloud Platform and the Denodo Platform:

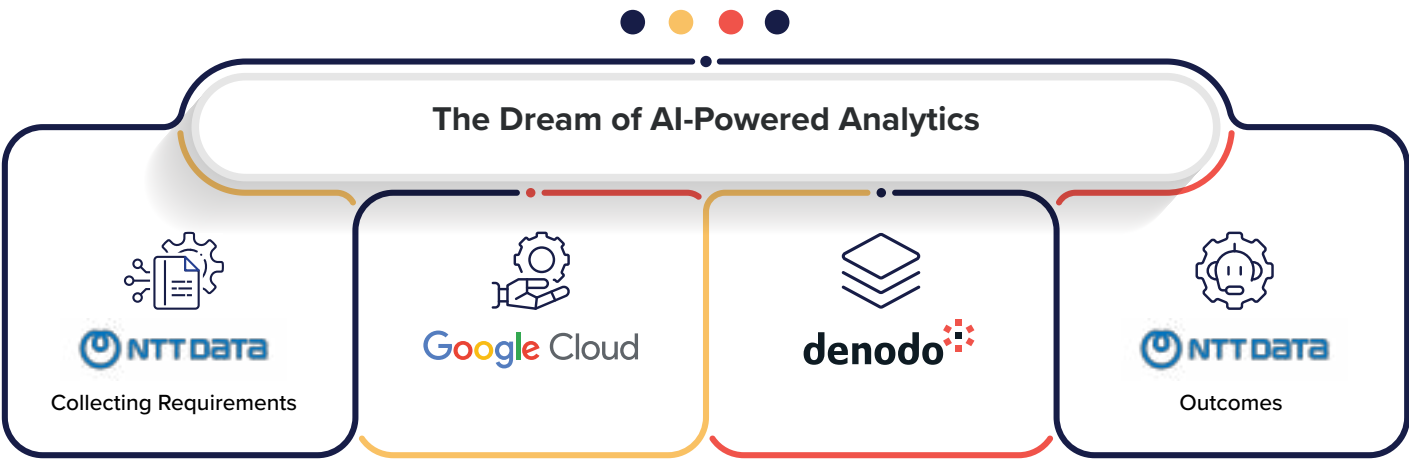
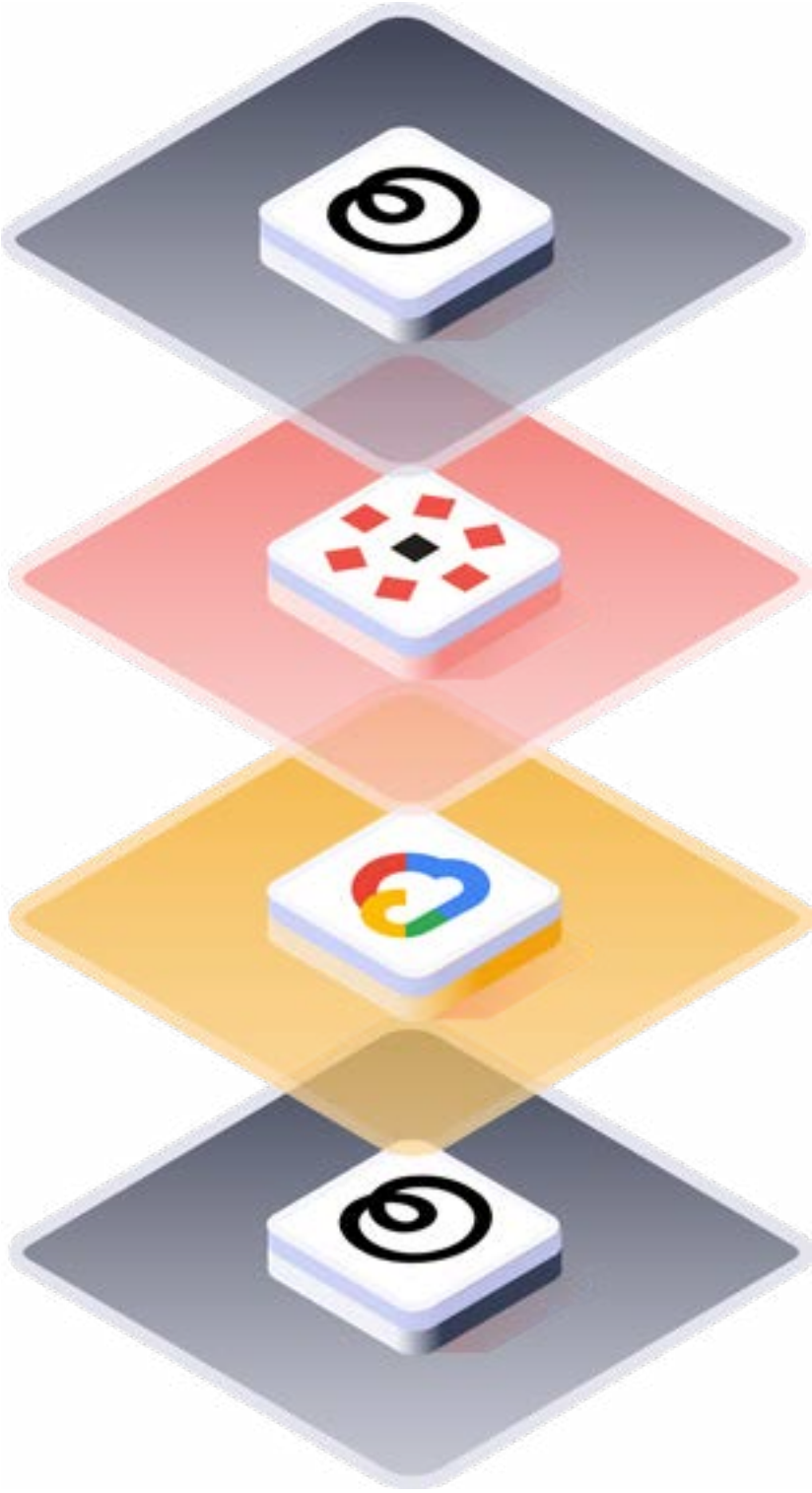
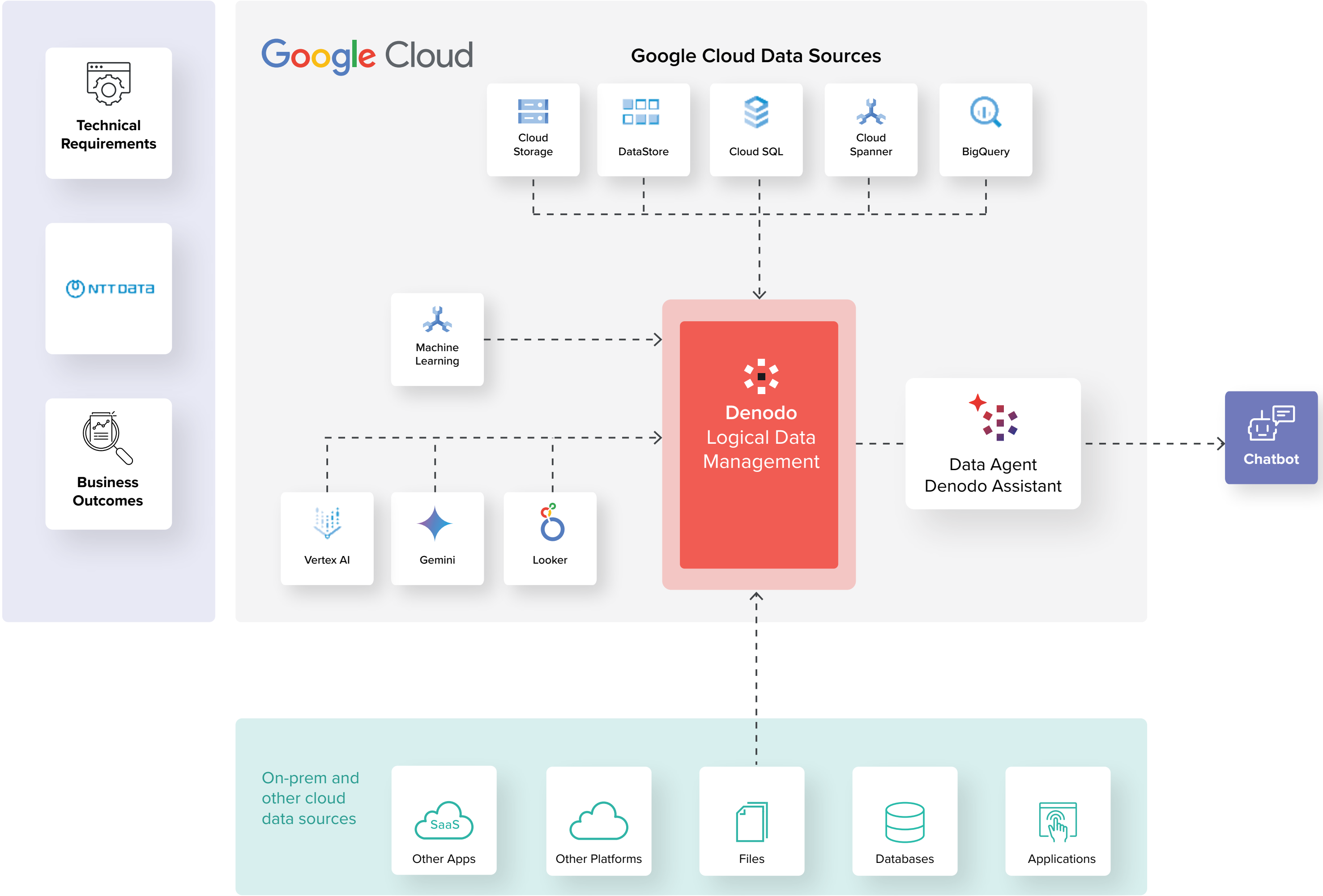
- **Google Cloud**

NTT DATA Italy is a Google Cloud Premium Partner and has a dedicated Competence Center with over 200 professionals specialized in Google Cloud, most of whom with Google Professional certifications. Moreover, NTT DATA holds several Google Enterprise Specializations, including Data Analytics, Cloud Migration, Application Development, and Infrastructure

- **The Denodo Platform**

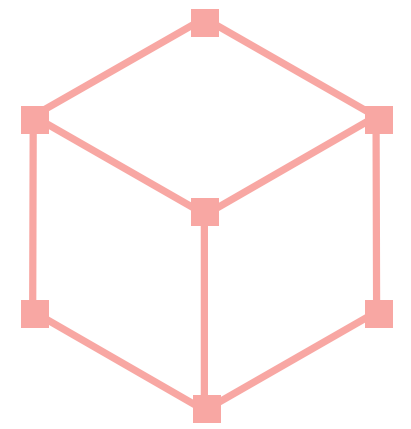
NTT DATA is a Denodo Silver Partner with a dedicated Competence Center composed of specialized professionals and a strong track record of delivering successful projects based on the Denodo Platform

HOW IT WORKS (AN ILLUSTRATION)



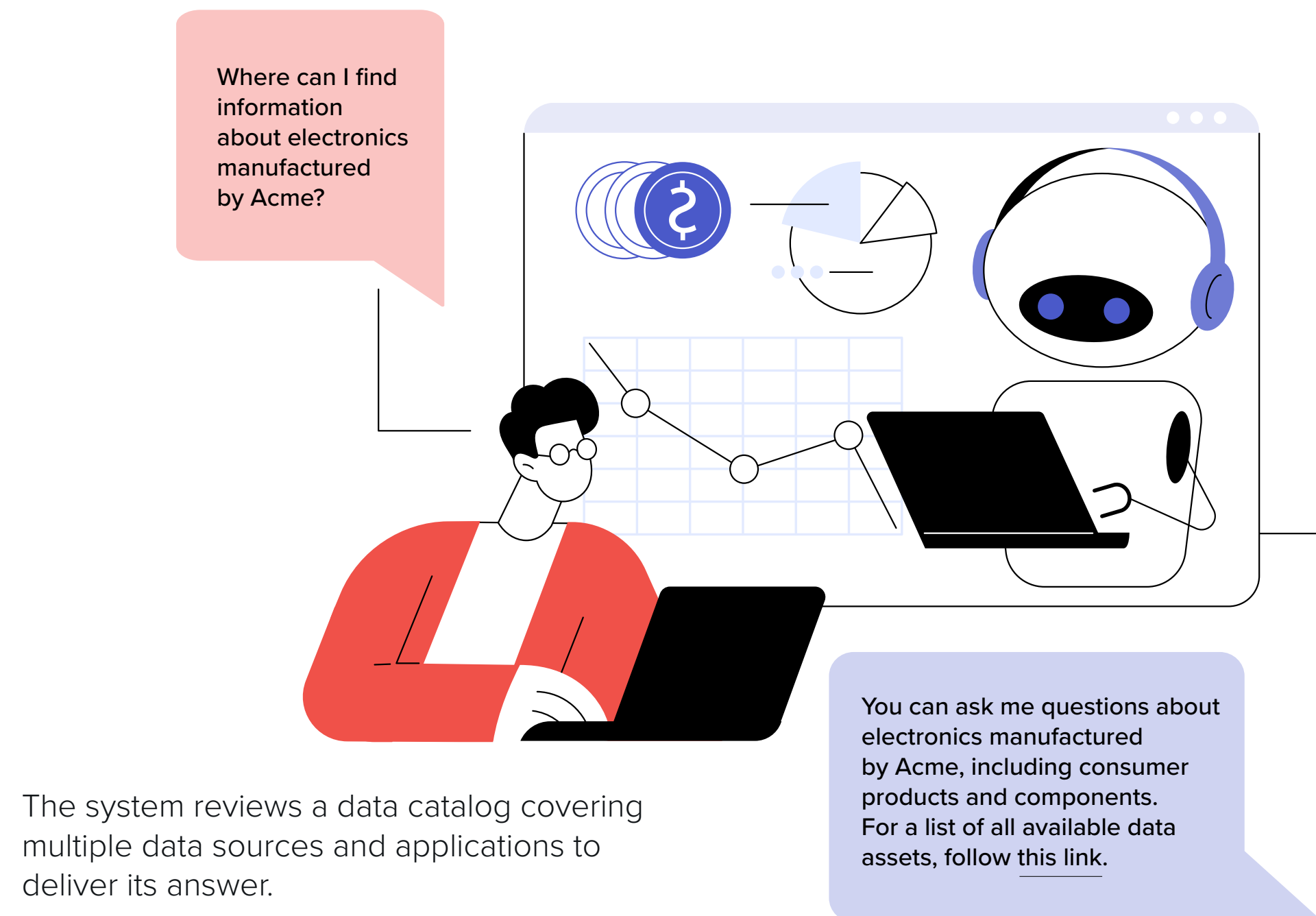
CHAPTER 4

CHATBOT-ENABLED ANALYTICS EXAMPLES

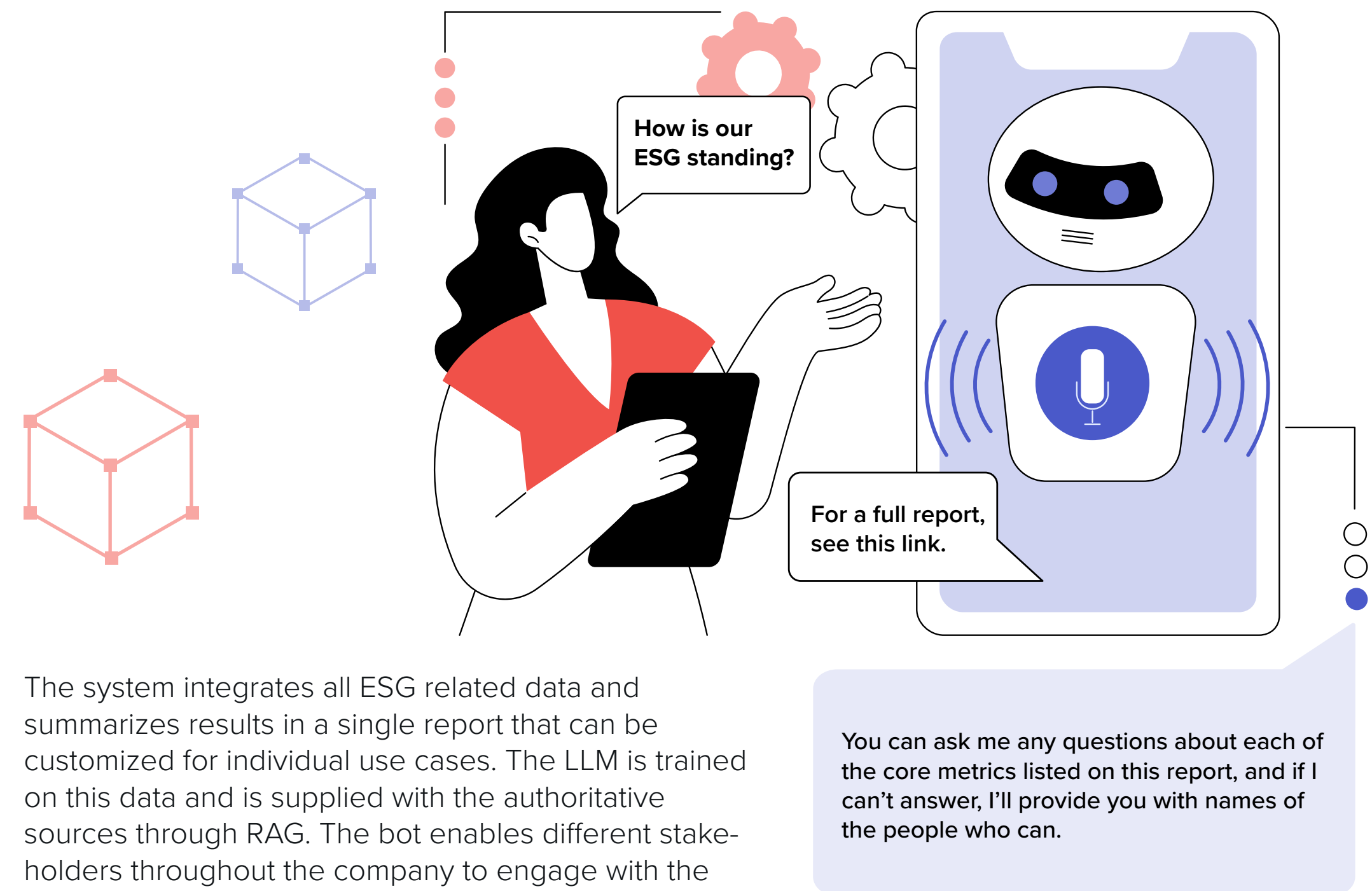


Here are just a few examples of how chatbots can be used across a variety of industries.

DATA DISCOVERY

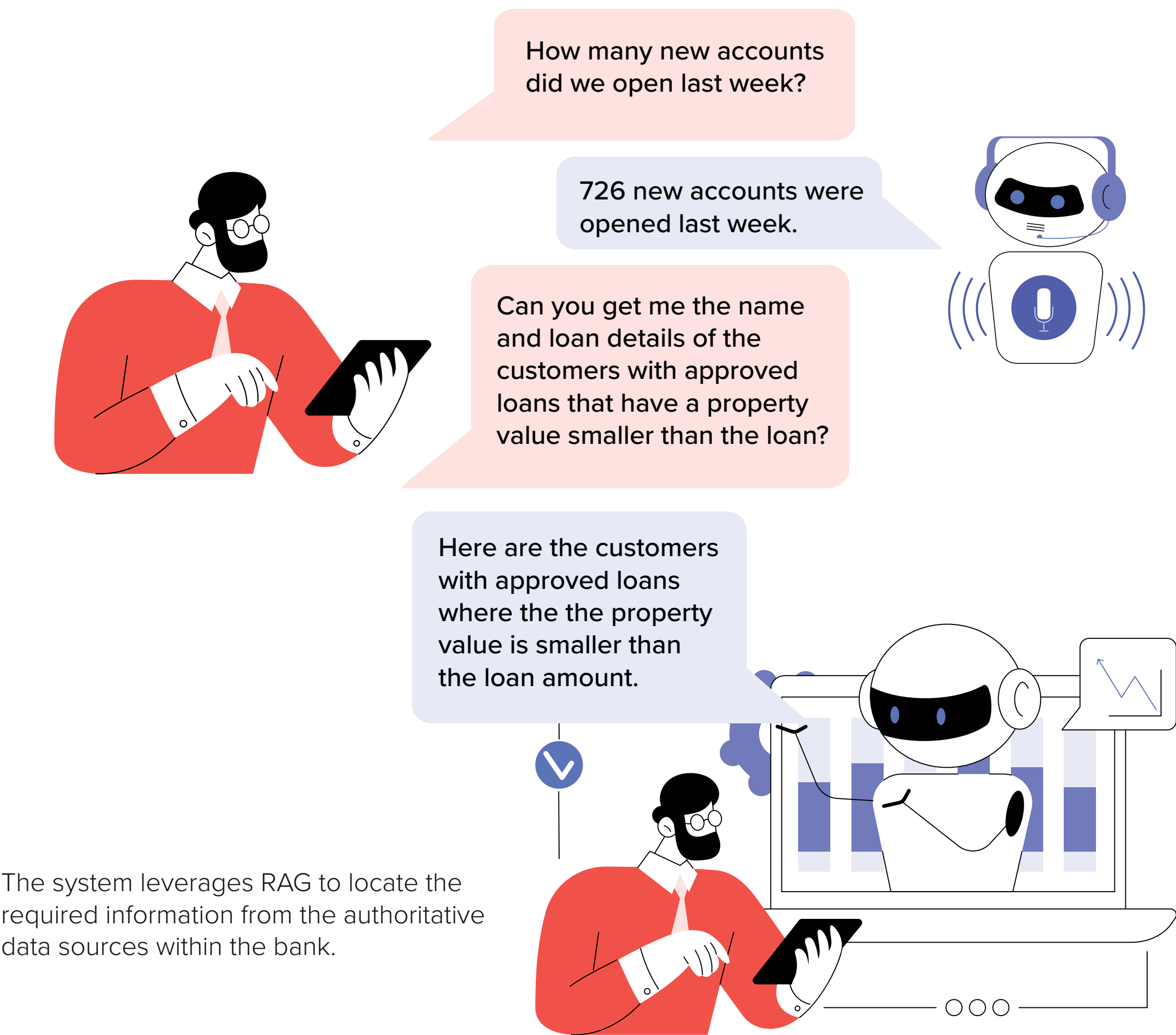


ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) COMPLIANCE

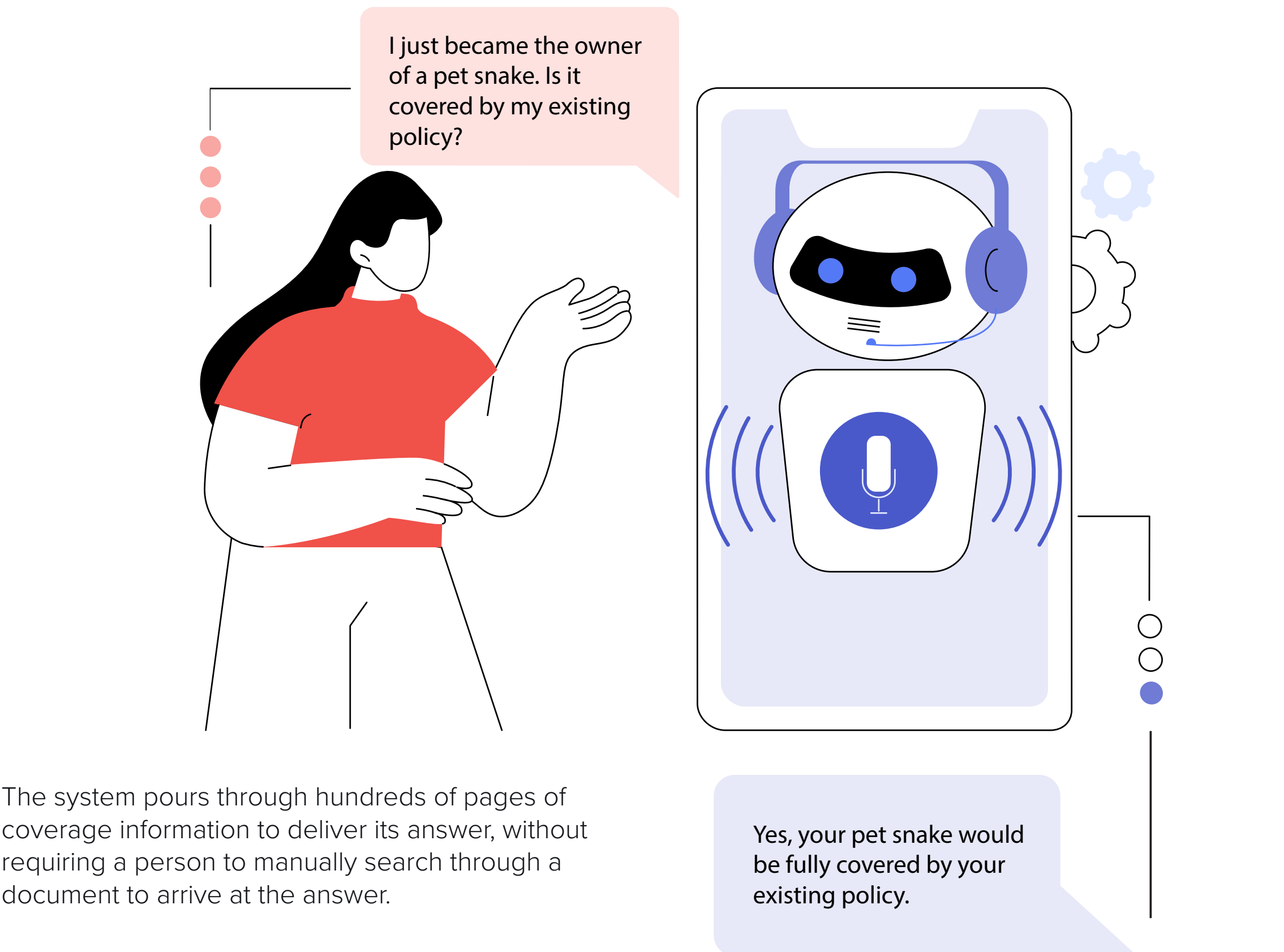


CHATBOT-ENABLED ANALYTICS EXAMPLES

BANKING



INSURANCE COVERAGE





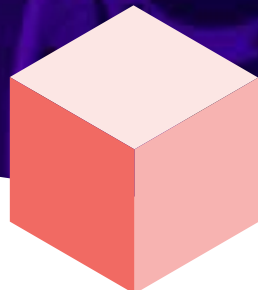
CHAPTER 5

THE SOLUTION IN ACTION

Let's consider the example of a hypothetical bank located in Lima, Peru. Let's imagine that the bank cannot easily get a real-time view of each customer's products and services.

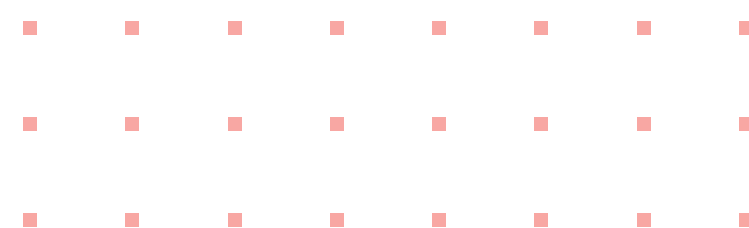
The bank engaged with NTT DATA, which recommended an AI-powered chatbot solution. Any rep should be able to view, in real time, not only what each customer has purchased, but what the customer may be interested in purchasing next, and receive some actionable guidance about how to best meet each customer's needs. NTT DATA determined that the bank would like to track sales made through the new solution.

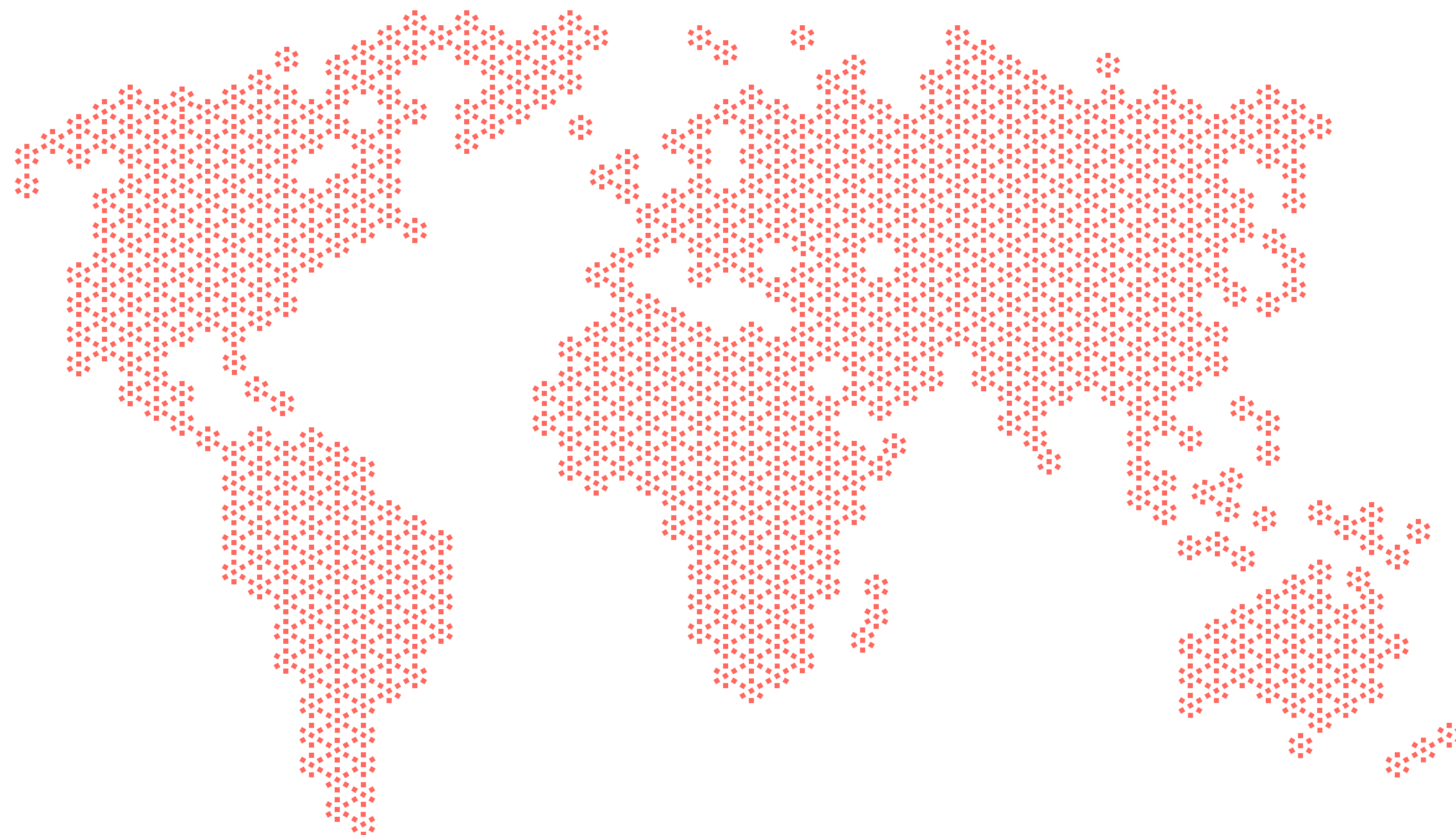
The bank moved most of its data to Google Cloud, with the exception of a legacy CRM that the bank is not allowed to replicate, and a pre-existing cloud system. The bank leveraged the Denodo Platform to unify all data sources for Google Gemini, the chatbot solution's LLM. The bank uses Google Vertex AI and the Denodo AI SDK to streamline development of a user-friendly interface that enables anyone at the bank to leverage sophisticated, reliable customer analytics to drive loyalty and sales. The solution provides a built-in report of sales attributed to its use.



NTT DATA's business and technical expertise +
Google Cloud's advanced AI capabilities +
Denodo's logical data management advances =

Instant, AI-ready data for chatbot-enabled
analytics, supported by proven business acumen.
Contact us to learn more, or to build a working
demo of a custom AI-powered chatbot.





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