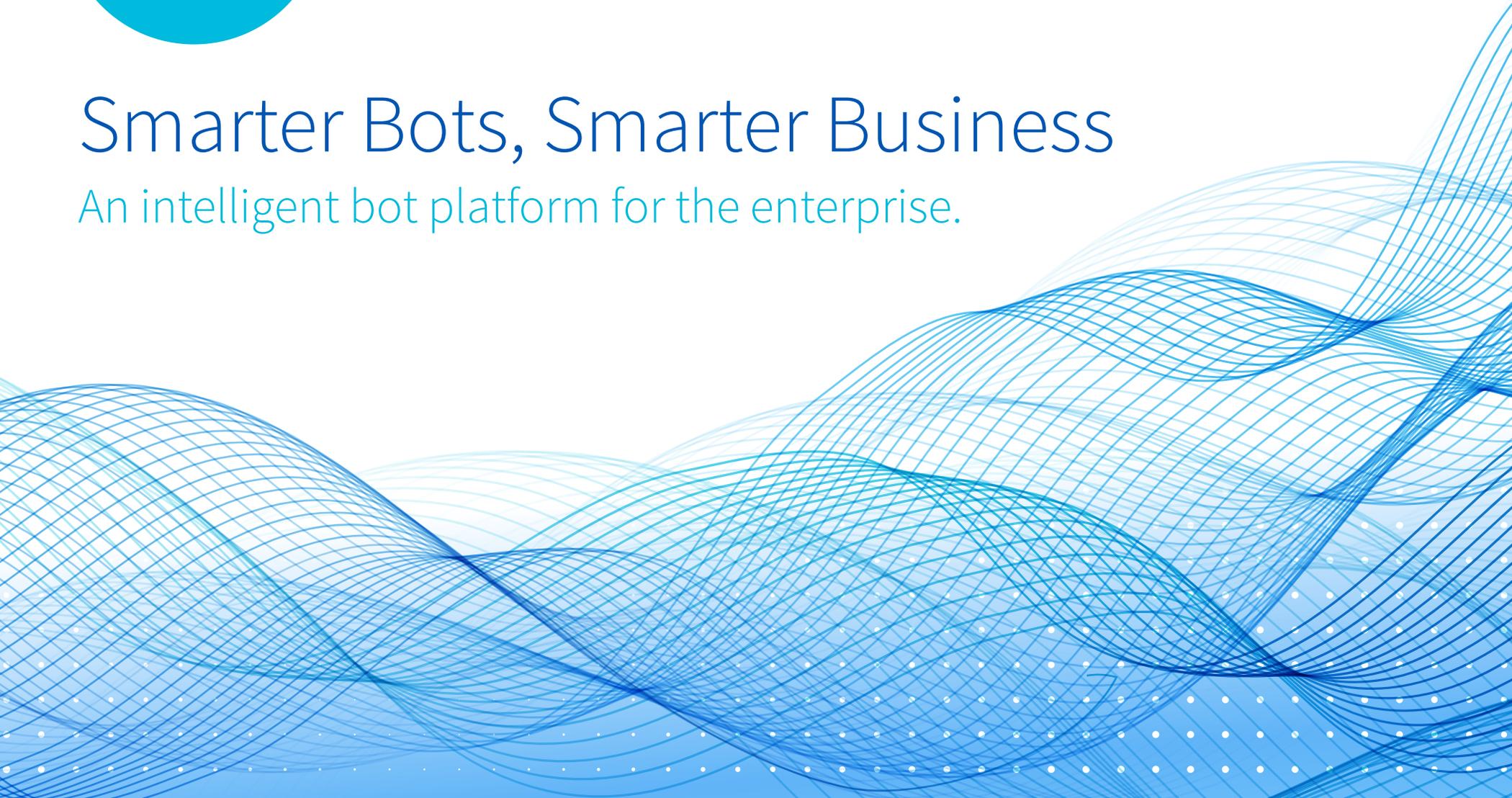




Smarter Bots, Smarter Business

An intelligent bot platform for the enterprise.



Who is Avaamo?

The Company

Avaamo is a venture funded enterprise software company. Our mission is to reinvent the way we communicate, transact and get work done using artificial intelligence.

Avaamo provides a cognitive technology driven platform that dramatically simplifies the time needed to design and deploy enterprise bots or Virtual Assistants (VA) to corporate employees and their customers.

At the core of Avaamo's platform is a secure messaging infrastructure that delivers scalability, reliability, security, and integration to legacy enterprise workflows and applications.

Avaamo is offered as a SaaS service and is founded by enterprise veterans from TIBCO, SAP, Siebel, and Apple. With offices in Los Altos, California, and Bangalore, India, Avaamo is funded by investors from Japan, China, and Silicon Valley.

100+ years experience in enterprise software



The Technology

As of February 2017, Avaamo is one of the few companies that has pioneered a cognitive computing platform specifically designed to support a broad range of enterprise solutions in banking, healthcare, insurance, and telco industries.

Avaamo combines Natural Language Understanding (NLU) and various Machine Learning technologies (ML) to sift through structured transaction data residing in applications and unstructured data residing in documents, knowledge bases, or repositories to answer questions from users in real time.

Like a human, Avaamo learns from experience and training using patent-pending approaches to both assisted learning and supervised learning.

“Avaamo with 40 customers deployed globally has received broad customer validation for solving enterprise problems in banking, insurance, telco, and healthcare”

Why Cognitive Computing & chatbots matter?

The era of AI is here...

Cognitive Computing is a rapidly evolving technology that holds the promise to change the way we work and how business interacts with their customers, employees, and stake holders.

Advances in Technology

Rapid advances in machine learning, natural language processing, and real time computing have enabled the emergence of Virtual Assistants or chatbot technology that enables users to interact with a computer program the same way they would interact with a person.

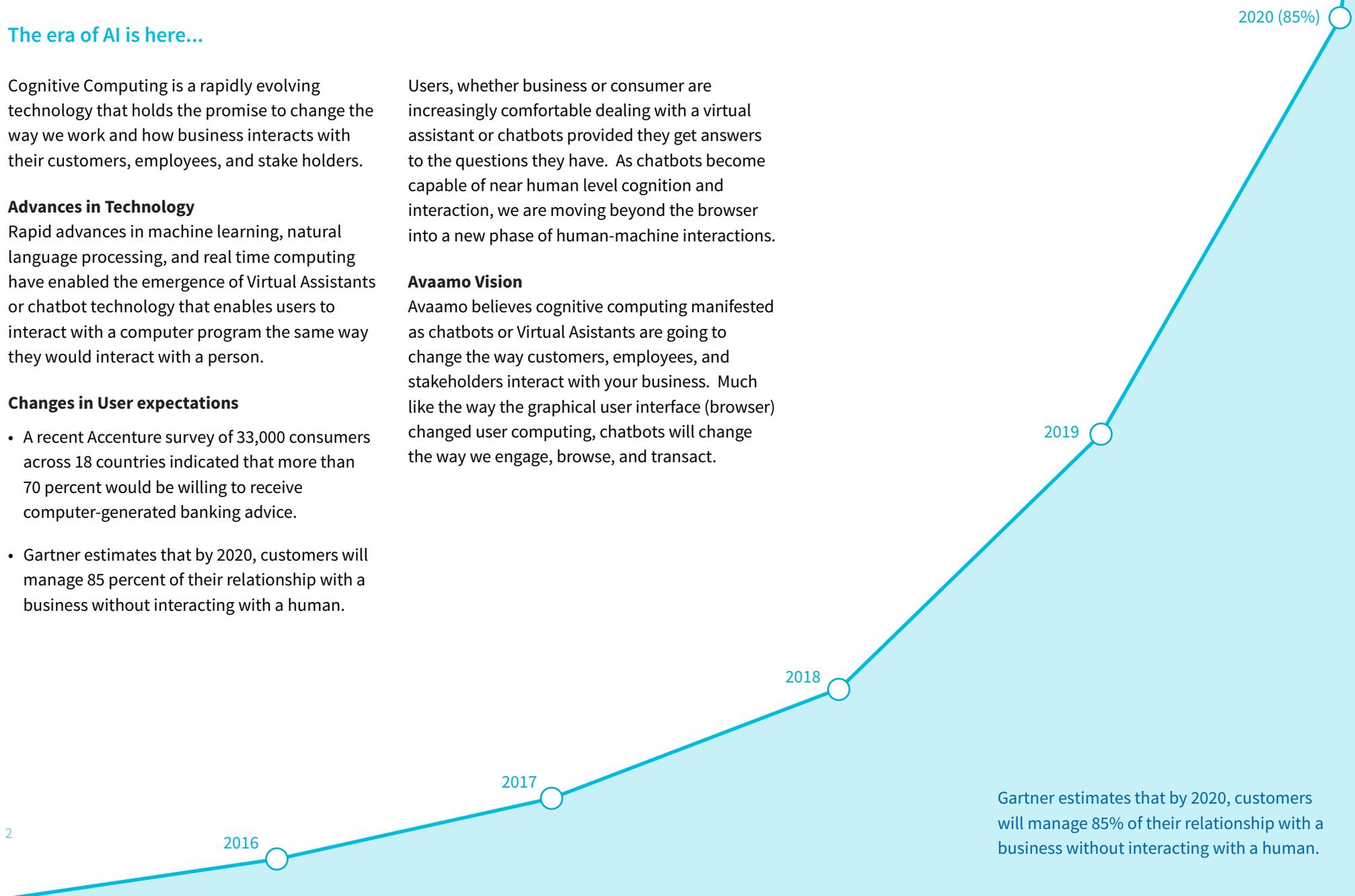
Changes in User expectations

- A recent Accenture survey of 33,000 consumers across 18 countries indicated that more than 70 percent would be willing to receive computer-generated banking advice.
- Gartner estimates that by 2020, customers will manage 85 percent of their relationship with a business without interacting with a human.

Users, whether business or consumer are increasingly comfortable dealing with a virtual assistant or chatbots provided they get answers to the questions they have. As chatbots become capable of near human level cognition and interaction, we are moving beyond the browser into a new phase of human-machine interactions.

Avaamo Vision

Avaamo believes cognitive computing manifested as chatbots or Virtual Asistants are going to change the way customers, employees, and stakeholders interact with your business. Much like the way the graphical user interface (browser) changed user computing, chatbots will change the way we engage, browse, and transact.



Gartner estimates that by 2020, customers will manage 85% of their relationship with a business without interacting with a human.

The Building Blocks of Avaamo

Technology Overview

Figure 1, right, illustrates the main technologies and architecture that augment and support Avaamo's cognitive capabilities.

Domains

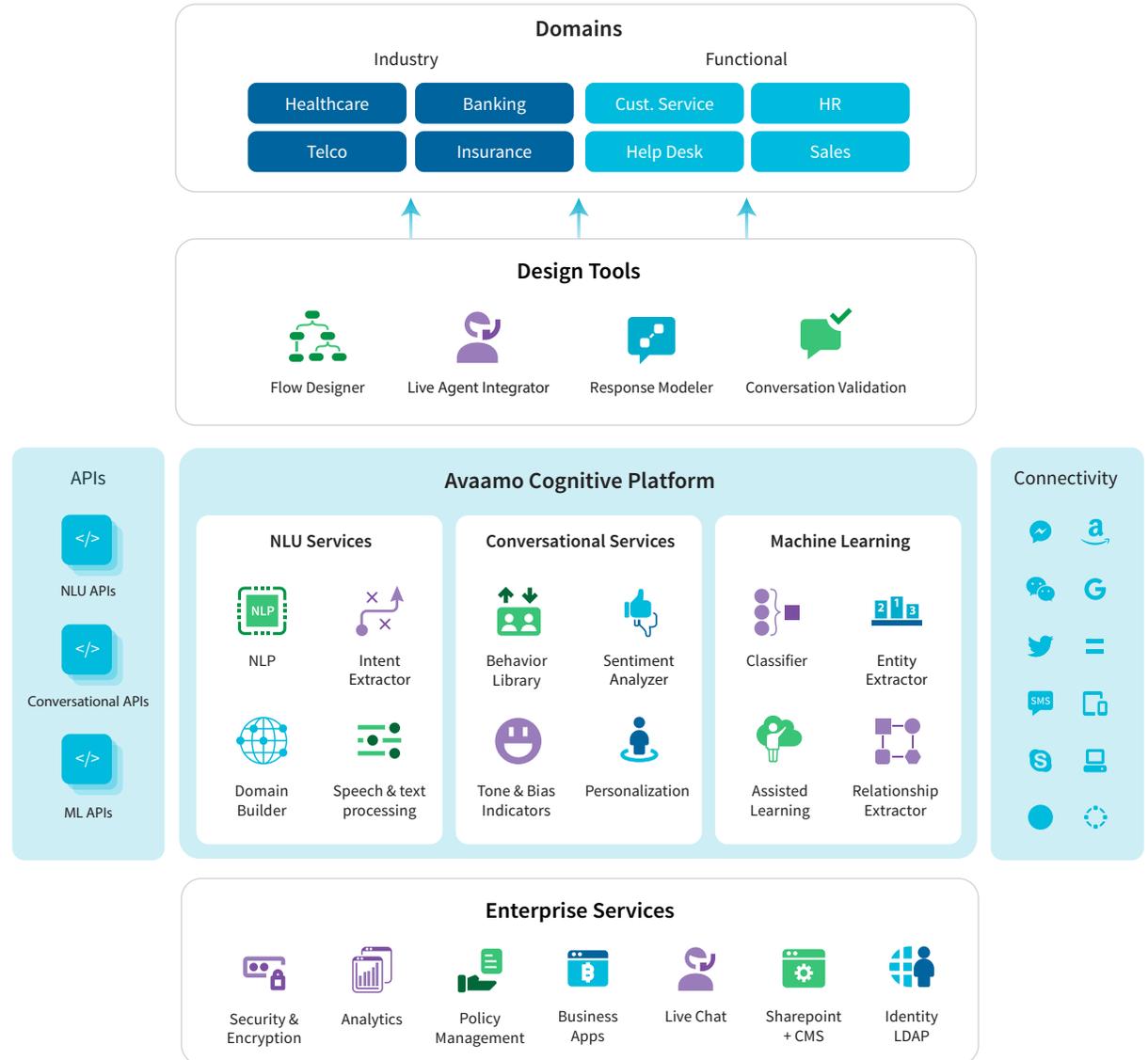
Avaamo was built for solving enterprise problems in industry and functional domains.

Industry

Avaamo focuses on industries/sectors which are driven by high volumes, regulatory oversight, as well as security guidelines where sophisticated cognitive automation provides very high ROI.

Functional

Avaamo has been successful in solving enterprise problems in conventional areas of high-volume, high-touch service endpoints like IT help desk, employee onboarding, sales productivity and customer service.



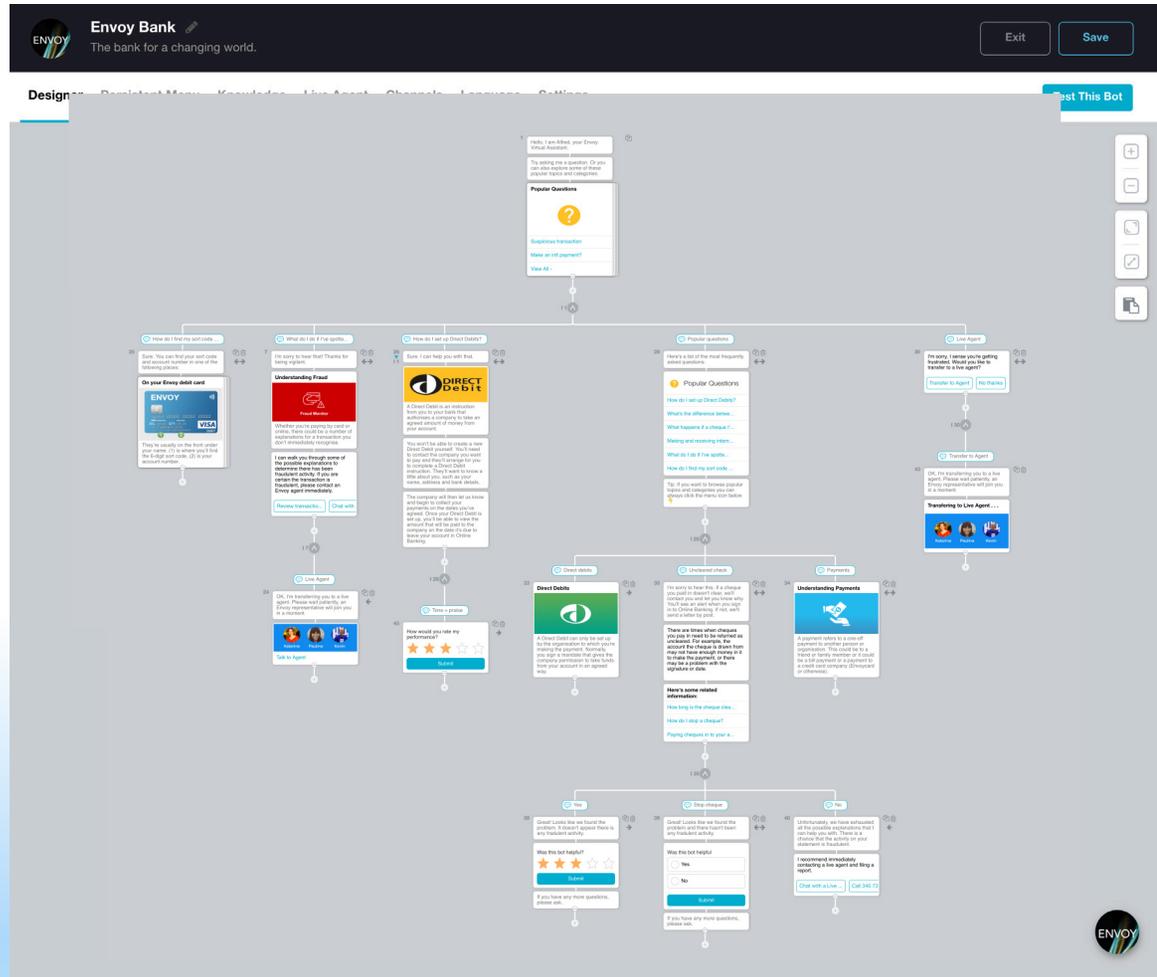
The Building Blocks of Avaamo

Design Tools

Avaamo Design Modules democratize virtual assistant design and enables non-technical business analysts and content designers to create, design, and implement conversational logic with a suite of intuitive tools.

- **Flow Designer:** Shown right, enables you to quickly design and map complex conversations visually.
- **Response Modeler:** Helps you design responses as cards, carousels, zimple text, quick replies or dynamic transactions.
- **Live Agent Integrator:** Toolset to define hand over to a live agent to help with further troubleshooting or escalation.
- **Conversation Simulation:** This module ensures conversations and variations can be simulated, recorded, replayed and matched with expected responses during design.

Figure 2
Flow Designer



The Building Blocks of Avaamo

Cognitive Platform

At the core of Avaamo cognitive platform is a multilayered highly differentiated set of technology modules addressing Natural Language Understanding, conversation logic, and machine learning.

NLU Services

This is a core set of patented technologies that address how human machine interaction can be converted into action.

- **NLP:** A patented language processor that evaluates and understands user queries and matches to the right intent.
- **Intent Inference Engine:** Uses statistical and rule based algorithms to understand intent and trigger conversation flows.
- **Domain Builder:** Used to identify the lexicon and dictionaries of phrases used in areas like banking, insurance, retail, etc. For example, “I want to open an account,” could represent a *checking* account in banking domain and a *credit* account for a retail customer.
- **Speech/text processing:** Voice to text translation, and vice-versa, including cadence and intonations.

Conversation Services

A set of cognitive technologies that help to design responsive human-machine interaction.

- **Behavior Library:** Understands behavioral patterns like confirmations, assertions, and negations, and linguistic nuances like misspellings and synonyms.
- **Sentiment Analyzer:** Pre-built libraries that allow bot developers to design responses based on hate, anger, exasperation and other human emotions detected in user queries.
- **Tone/Bias Indicator:** Understand user tone and bias at each interaction step.
- **Personalization:** This library understands prior usage history of the user and deploys that information in responses.

Machine Learning Services

The machine learning set of technologies allow the platform to look for data insights and decipher nuances to generate intelligent conversations much like a human.

- **Classifier:** Allows the platform to auto-generate, curate, and classify variations of

training data by feeding chat transcripts, previous resolutions, help guides, or other historical information.

- **Entity Extractor:** Identify specific business objects or topics that bots can be trained to recognize to ensure intelligent conversations. For example, “I want to transfer \$100 from my checking account to savings,” yields entities such as *checking account*, *savings account*, *\$100*, etc.
- **Assisted Learning:** Enables the platform to present users with a set of alternative choices to resolve ambiguity and commit this to user “assisted” learning
- **Relationship Extractor:** Analyzes conversations to find relationships between nouns, verbs, and subjects. For example, “How do I make international payments?” Avaamo can now understand the user’s primary goal is to *send* money based on the sentence and adjust responses.

The Building Blocks of Avaamo

Enterprise Services

Avaamo provides out-of-the-box translators to seamlessly deploy Virtual assistants to Facebook Messenger, Twitter, SMS as well as enterprise channels like, Skype, website, internal portal, SharePoint or mobile app.

Avaamo is designed to be deployed in high availability enterprise environments with a variety of enterprise ready features including:

- **Security:** Military grade security 256-BIT AES encryption.
- **Policy Management:** Authenticate based on enterprise policy requirements.
- **Analytics:** Rich Analytics to see real-time usage of the bot across channels as well as goal conversions, unhandled conversations.
- **Business App:** Avaamo already has pre-built connectors to various business and consumer applications including Salesforce, SAP, ZenDesk, JIRA, Box, Concur, and more.
- **Live Chat/Agent:** Pre-built connectors to several third party Live Agent products like LivePerson, 24x7, IMIChat etc.

- **CMSvs/SharePoint:** Bi-directional integration with Knowledge repositories like SharePoint other Content stores.
- **Identity/LDAP:** Integrations to existing identity management systems to ensure employee only authenticated users.

APIs

All the platform capability that is made available via tools is also available via APIs.

Let's pick Avaamo's Brain

How Avaamo works

When presented with questions, Avaamo analyzes the question to determine what type of information is needed as well as various possible interpretations of the questions. Avaamo pores through System of Record that may be connected or other repositories to arrive at a confidence score on the best possible answer. In the case of ambiguity, Avaamo asks for clarification using a technique known as disambiguation.

Avaamo's score can improve with time through learning based on interactions with the user or better training by using existing results.

The Easy Part

A question well formed grammatically and stated in terms that match information can be answered immediately and accurately.

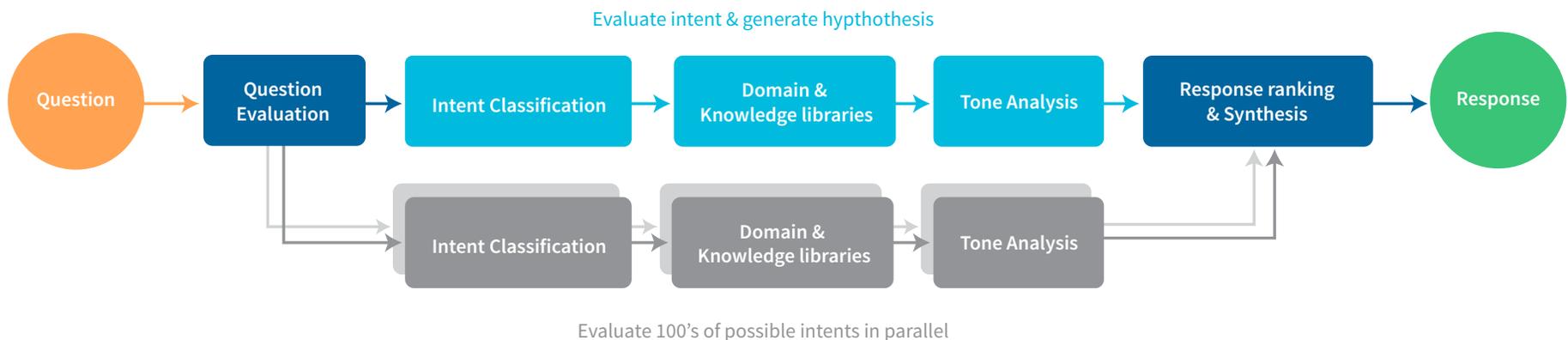
"Where is the nearest ATM?"

"Has Invoice number 2343 been processed?"

The Hard part

Humans whether in text or other interactions do not create perfectly structured questions. They are subject to syntax errors, spelling mistakes, and ambiguity in meaning and context.

Figure 3
How Avaamo processes a question



Let's pick Avaamo's Brain

How Avaamo hears, analyzes and responds

1. Understanding Intent

Correctly understanding the questions means identifying the user's intent. Three different variations in a simple customer service inquiry can signal the same intent: Avaamo Cognitive services parse the question for intent, syntax, spell check and even emotional intonation like hate, frustration, exasperation to understand context.

"The garbage bins are full!"

"Help! The truck did not show."

"The Garbage was not picked up!"

2. Countering Ambiguity

Generating a relevant, accurate, and useful response may involve different disambiguation techniques. Avaamo can reference conversational context, utilize background information, or actively seek user clarification to quickly discern the user's true intent.

"Is this regarding Garbage pick up in your area?"

"Can you identify your street location for Garbage Pickup? "

3. Response in Context

This means usually generating a response that is relevant to the Intent. This will involve understanding the users actual need in some cases using (1) Disambiguation and (2) driving complex multi turn actions (3) detecting and repairing a temporarily derailed conversation. The Avaamo learning engine based on past actions will create a response in context.

"Would like you initiate a service ticket?"

"Can I initiate a service ticket, based on your street address?"

4. Executing an Action

This means usually inputting data using a conversational interface into a transaction based back end system to record a inquiry, complaint or in some cases like Banking – initiate a transaction, transfer funds, or in healthcare- execute a change of address or change in plans. Integration to third party services and transactions systems, ensure the questions is now answered, responded and "closed" Avaamo leverages multi-modal integrations to interface with enterprise systems and execute these actions.

"Every single conversation is different, Every single context is different..."

-Sundar Pichai, CEO Google, I/O keynote, 2016

What Avaamo can do for you

Transforming the present

Avaamo's platform allows your business to create custom cognitive driven chatbots (VA) that take on your brand's personality and voice by leveraging existing communication systems and your knowledge base to connect directly with employees, customers and stakeholders in everyday, informal language. Avaamo's chatbots are being adopted in a wide variety of industries.

Banking

Avaamo banking customers have deployed chatbots to support brokerage sales, fraud reporting, personal banking, product advice for investment products as well as more mundane tasks like scheduling assistance or locating an ATM.

Insurance

Insurance customers are reducing call volume by using Virtual Assistants to offering automated Broker advice, Claims status or Onboarding assistance for new customers.

Telecommunications

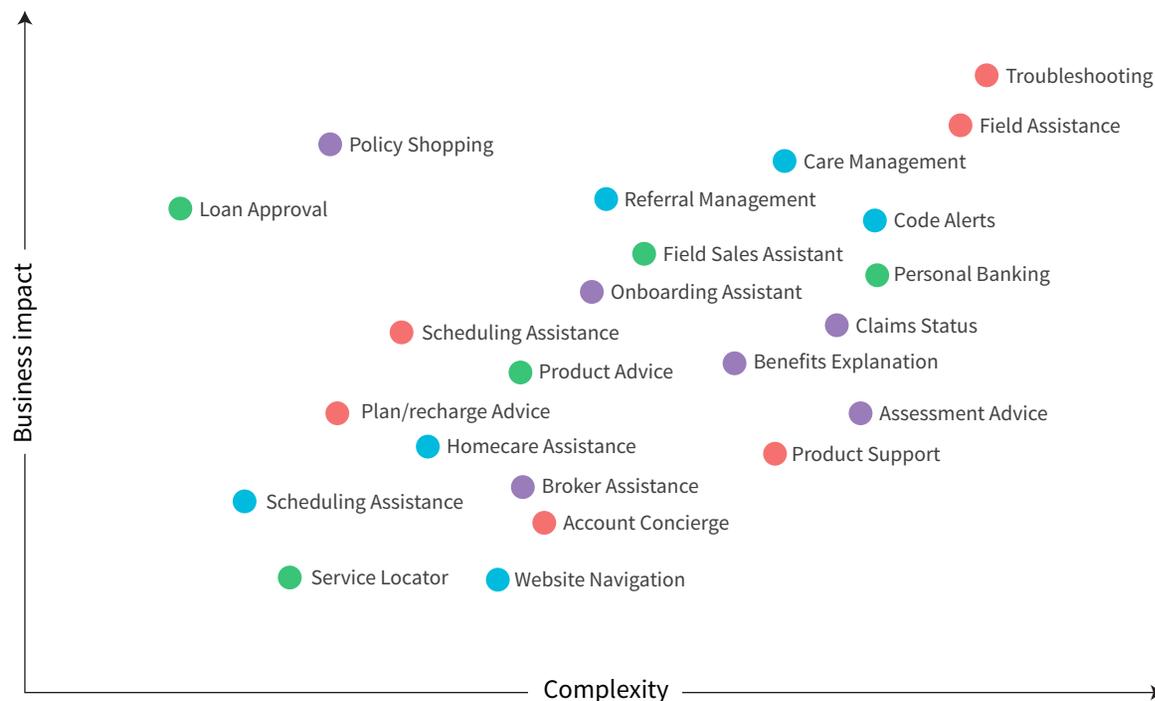
Avaamo customers in this segment are exploring a broad array of use cases from customer service to marketing. Typical use cases include: Account concierge, Recharge/Plan advice, Internet troubleshooting as well as marketing new offers.

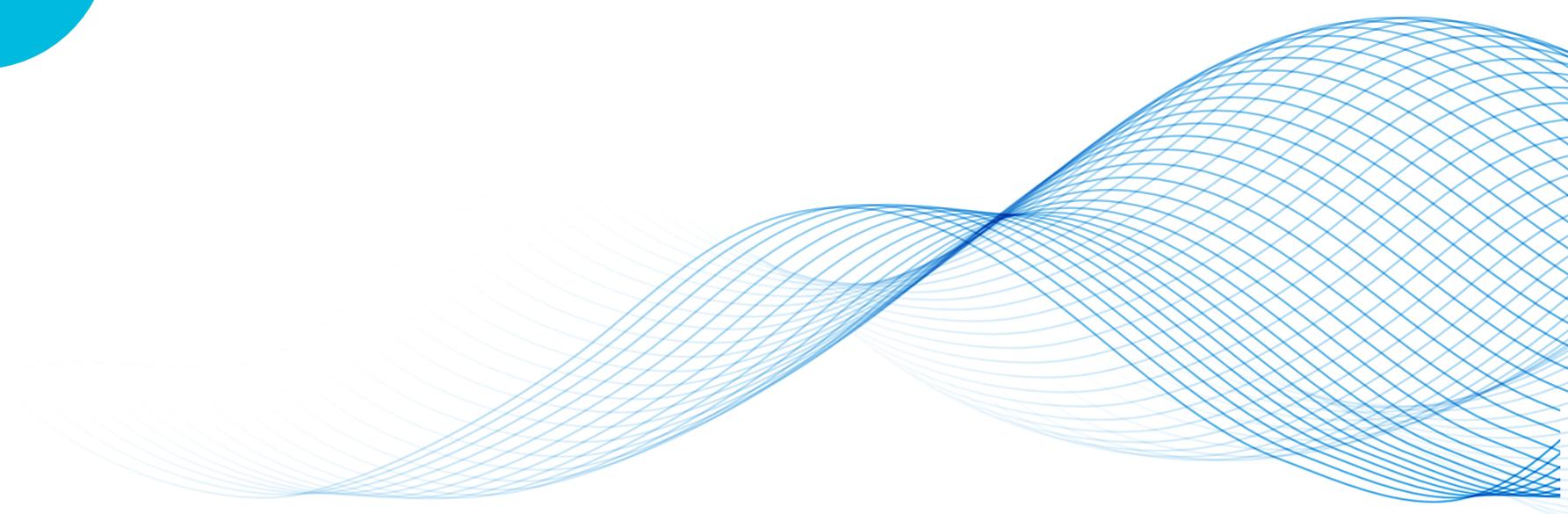
Healthcare

In a deeply regulated industry, delivering services via chatbotbots can reduce costs and improve the quality and timeliness of healthcare information. The world's largest healthcare providers understand the power behind cognitive

technologies and are aggressively adding this technology to their business models. Typical use cases include Homecare Assistance, Claims assistance, Care Management, Specialist Referrals, Case management and Appointment scheduling.

Figure 4: Industry Use Cases





Smarter bots, smarter business.

The simpler, smarter interactions artificial intelligence makes possible are great for consumers and drive big wins for enterprise. What will AI do for you?

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