

LET's CHAT

AI - based Conversations

October 2018

Foreword



The NASSCOM Research report titled “**Let’s Chat – AI-based Conversations**” aims to highlight the current Chatbot landscape in India. We have tried to bring out how Indian Chatbot market has shaped-up in terms of start-ups, investments and M&A transactions and what are the forces that are driving the market. We have also tried to showcase Chatbot solutions offered by various start-ups as well as established IT-BPM firms. Hope you enjoy reading this report.

Debjani Ghosh
President, NASSCOM

Acknowledgement



NASSCOM
Rakesh Kumar
Director - Research



NASSCOM
Kshitiz Arora
Sr. Manager - Research

This report has been developed by NASSCOM Research through a comprehensive study to understand the Chatbot landscape in India.

The preparation of this report has been possible with support from various information sources including market insights from representatives from different IT-BPM enterprises and start-ups in India who have extended great help to the research team. We wish to sincerely thank all of them for their valuable contributions without which this report would not have been possible.

Table of Contents



4

Objective of the Report

5

Research Methodology

6

Executive Summary

7

Chatbot Landscape

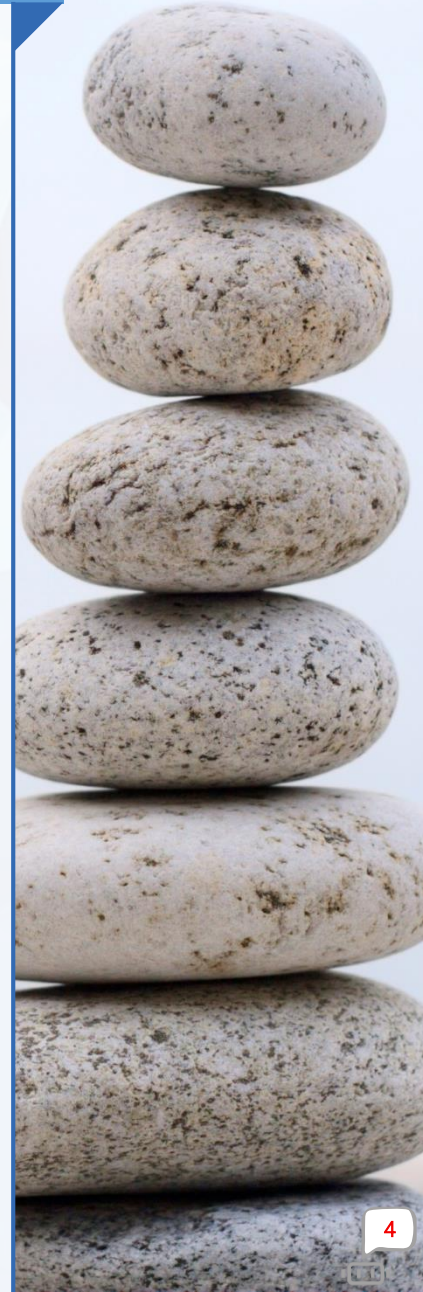
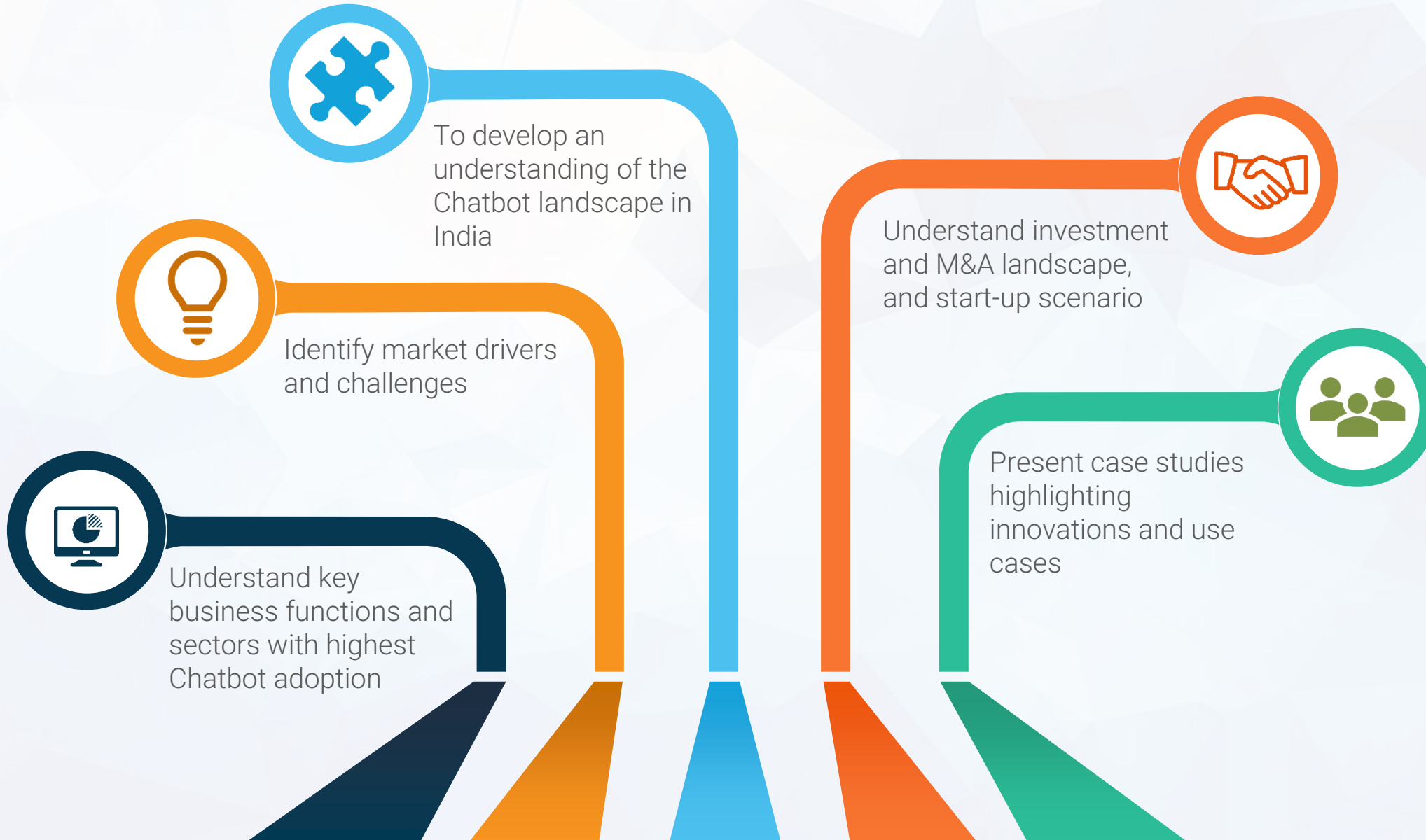
26

Case Studies

48

Appendix

Objective of the report





Desk-based research across different databases, reports, publications and news articles



Chatbot case studies from the leading IT, BPM, GCC firms and start-ups



Expert interviews with Chatbot developers and users

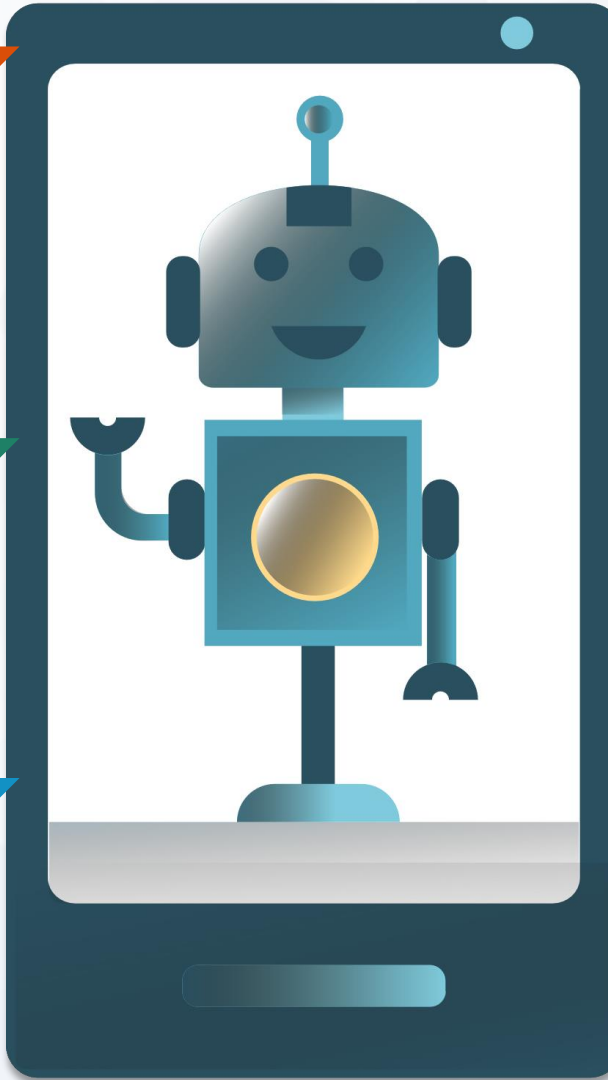
NASSCOM Analysis

Executive Summary

India is one of the world's most attractive Chatbots markets; It is positioned third after the US and the Europe, respectively, in terms of total Chatbot funding which reached USD90 million in 2017

The Chatbot landscape in India is characterized by the presence of 150+ start-ups, 120 of these were founded between 2015-2017

Going forward, as AI technologies improve further, Chatbots' performance is expected to evolve to provide end-to-end workflow orchestration and resolution



The market is driven by increasing customer expectations, increasing proliferation of messaging apps, enterprises' focus on improving productivity and reducing cost, increasing availability of data and technological advancements to handle the data

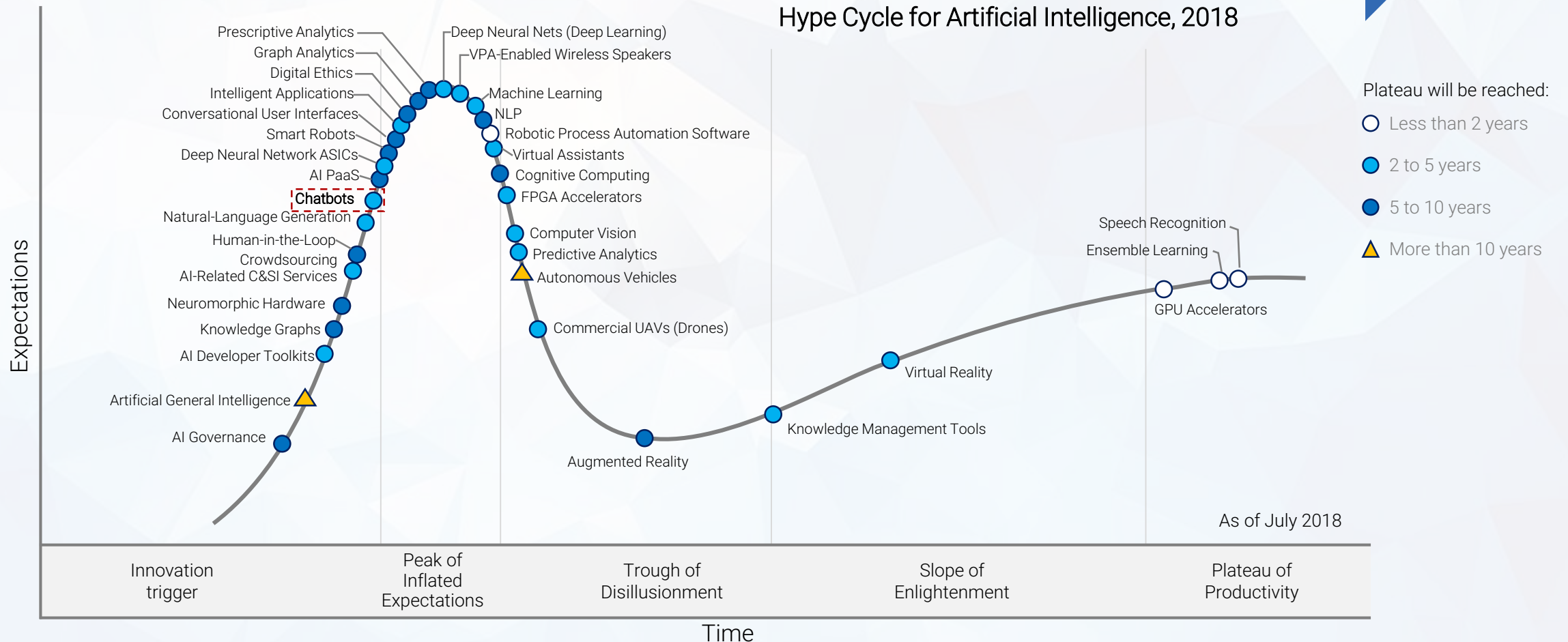
Chatbots in India are still evolving and are a bit far from handling real-life situation, and lack human touch and contextual awareness

Introduction to Chatbots

Chatbots are programs that leverage Artificial Intelligence (AI) techniques such as Machine Learning (ML), Natural Language Processing (NLP), image and video processing, and audio analysis to simulate conversations with human users



Chatbots continue to gain traction and are expected to achieve mainstream adoption in next two to five years



- Chatbots are one of the most transformational use cases of AI. While practice areas such as Virtual Assistants are heading towards the 'Trough of Disillusionment', Chatbots are experiencing an increased hype
- With increasing focus on areas that involve communication between humans, especially customer service, Chatbots are expected to gain further traction

Chatbots find highest implementation in customer service function; They are gaining traction in sales and marketing function due to two-way communication nature

Illustrative

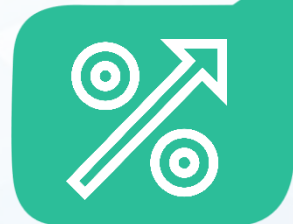


Customer Service

- Quick response time
- Available 24X7
- Handle high volume of requests
- Improved agent productivity
- Lesser errors

Sales & Marketing

- Generate leads
- Schedule meetings
- Push product sales
- Proactive customer interaction
- Increased customer engagement



HR

- Candidate screening
- On-boarding
- Company information and policies
- Employee training
- Performance management

IT

- Incident notifications
- Incident creation
- Task notifications and notes
- Outage alerts and reports
- Reset passwords



Finance Support

- Payroll processing
- Handle seasonal spike in requests
- Perform audit

At present, Chatbots are capable of responding to user's simple queries; Going forward, they are expected to evolve and recommend products to the customer

Illustrative



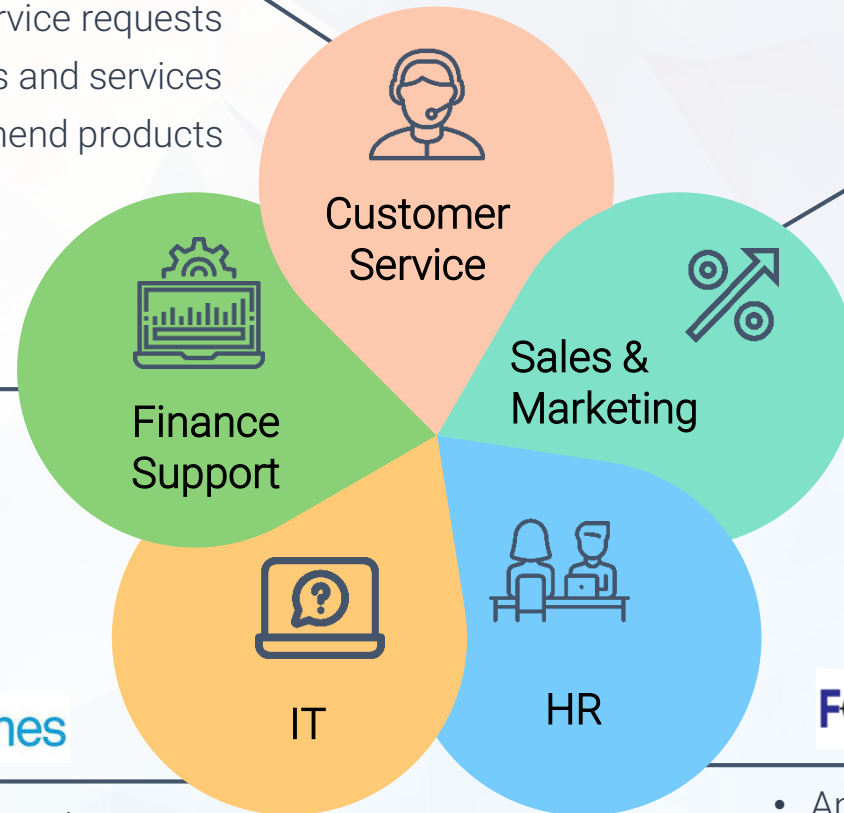
- Handle enquiries and service requests
- Provide information about products and services
 - Recommend products



- Address payroll queries
- Auditor engagement and query resolution
- Guide users on critical initiative



- Handle level 0/1 calls such as password reset/unlock
- Infrastructure management and applications support
 - Employee on-boarding



- Deliver focused campaigns for brand advertisers
- Run campaigns based on user searches and requests
- Answer queries around key sales metrics



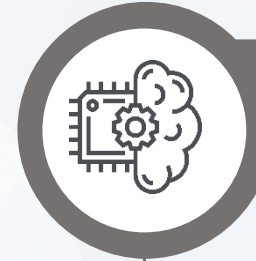
- Answer questions on company's HR policies
- Profile search
- Monitor emails with frequent queries and provide automatic responses

The Chatbot market is driven by increasing customer expectations, increasing proliferation of messaging apps and enterprises' focus on improving productivity and reducing cost



Changing **customer expectations** and focus on providing better **customer experience**

Enterprises' need to **streamline operations** and **reduce the operating cost**



Matured **machine learning algorithms** (NLP processing, deep neural networks, etc.) that provide the tools to convert big data into action

Cloud computing and the availability of inexpensive hardware providing access to the **physical infrastructure** required to run these programs



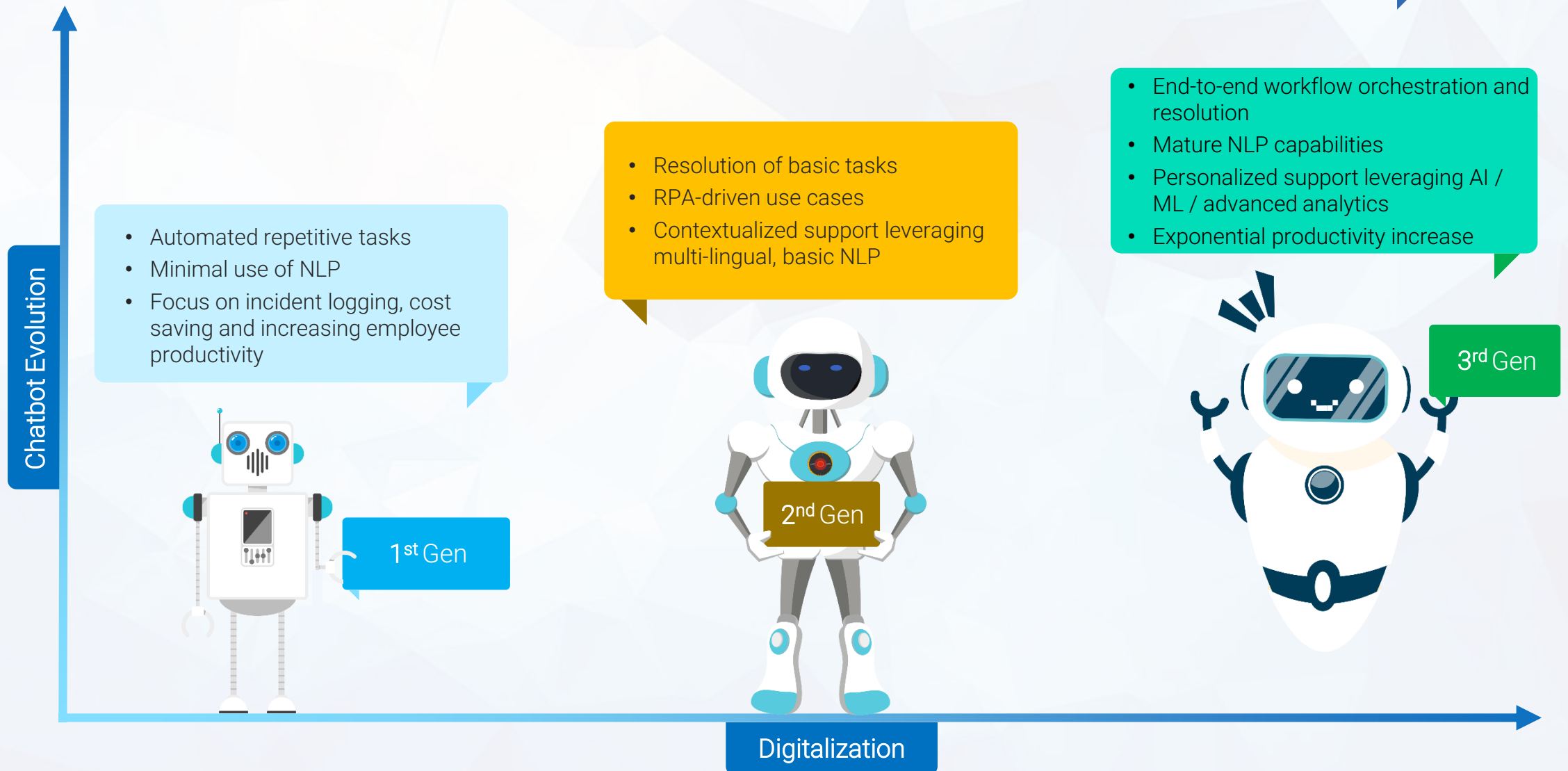
The **mobile revolution** further fuelled by increasing proliferation of messenger apps and reluctance to download apps

Open source communities, further accelerating the development of products & services through collaboration

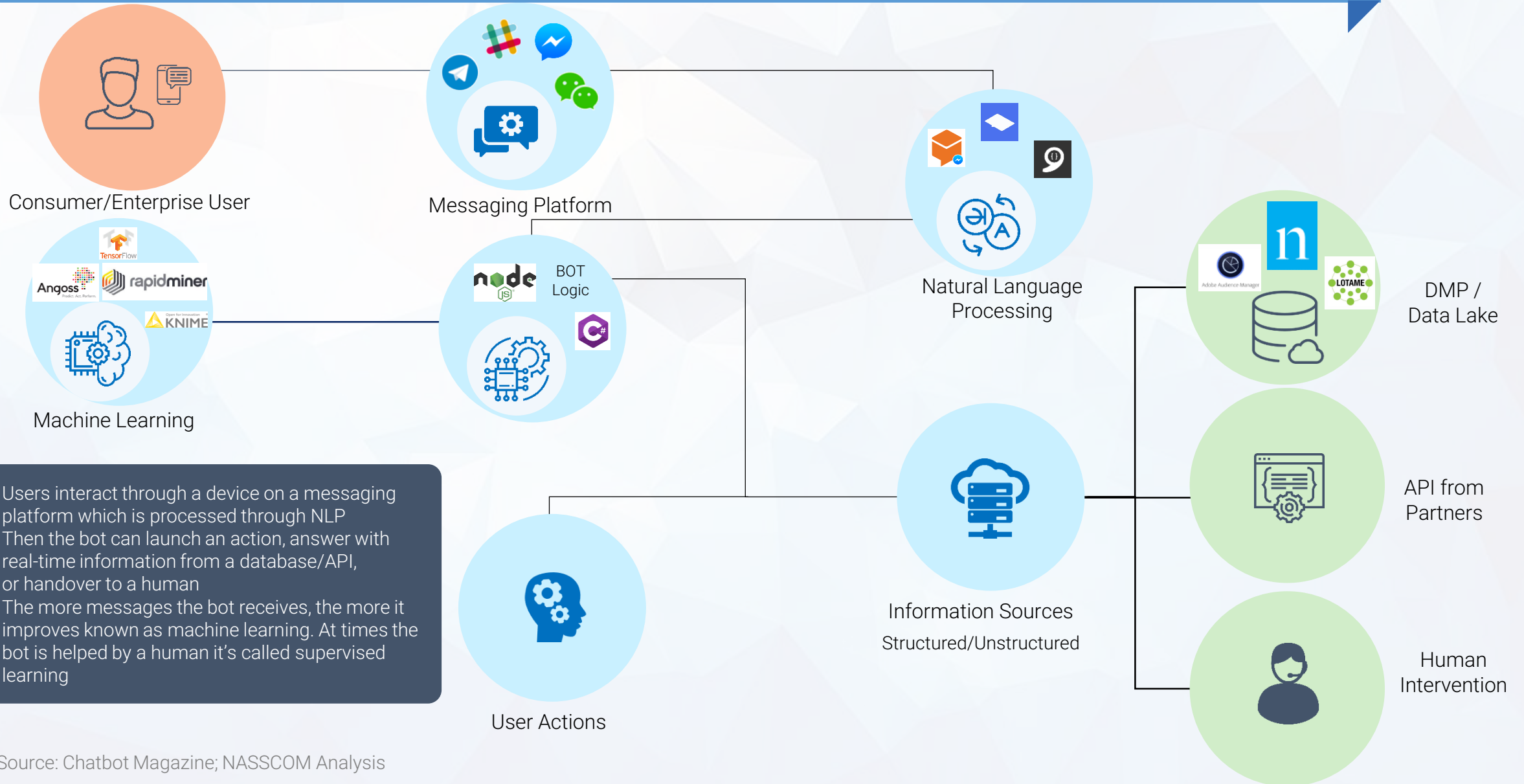


Data digitization and big data providing inputs required to power these programs

Advancements in machine learning and natural language processing has resulted in evolution of Chatbots from a programmed answering agent to an intelligent virtual assistant



Chatbot architecture includes a mix of third-party platforms and proprietary/in-house tools which allows quick turnaround and customized implementations



- Users interact through a device on a messaging platform which is processed through NLP
- Then the bot can launch an action, answer with real-time information from a database/API, or handover to a human
- The more messages the bot receives, the more it improves known as machine learning. At times the bot is helped by a human it's called supervised learning

Chatbot landscape features market players including platform providers, developers and enterprises and consumers

| Illustrative |



Chatbot Platforms



Messaging and OEM apps that provide distribution of Chatbots



Chatbot Developers



Vendors that use third-party Chatbot solutions to develop custom solutions for their clients



Enterprise / Consumer Chatbots



Chatbots for enterprise use cases or the ones meant to be used directly by consumers

BFSI is at the forefront of Chatbot adoption, especially for customer-facing use cases; Healthcare and Education are among the emerging use case sectors

Illustrative



Banking



Insurance



Retail /
e-commerce



Healthcare



Education



Chatbots are still in the evolving phase and are unable to handle real-life situation; They also lack personalization, human-touch and contextual awareness

Inability to handle real-life situations

Chatbots are not equipped to handle real-life scenarios. They can be repetitive and their intelligence is limited unless they are constantly updated

Context awareness

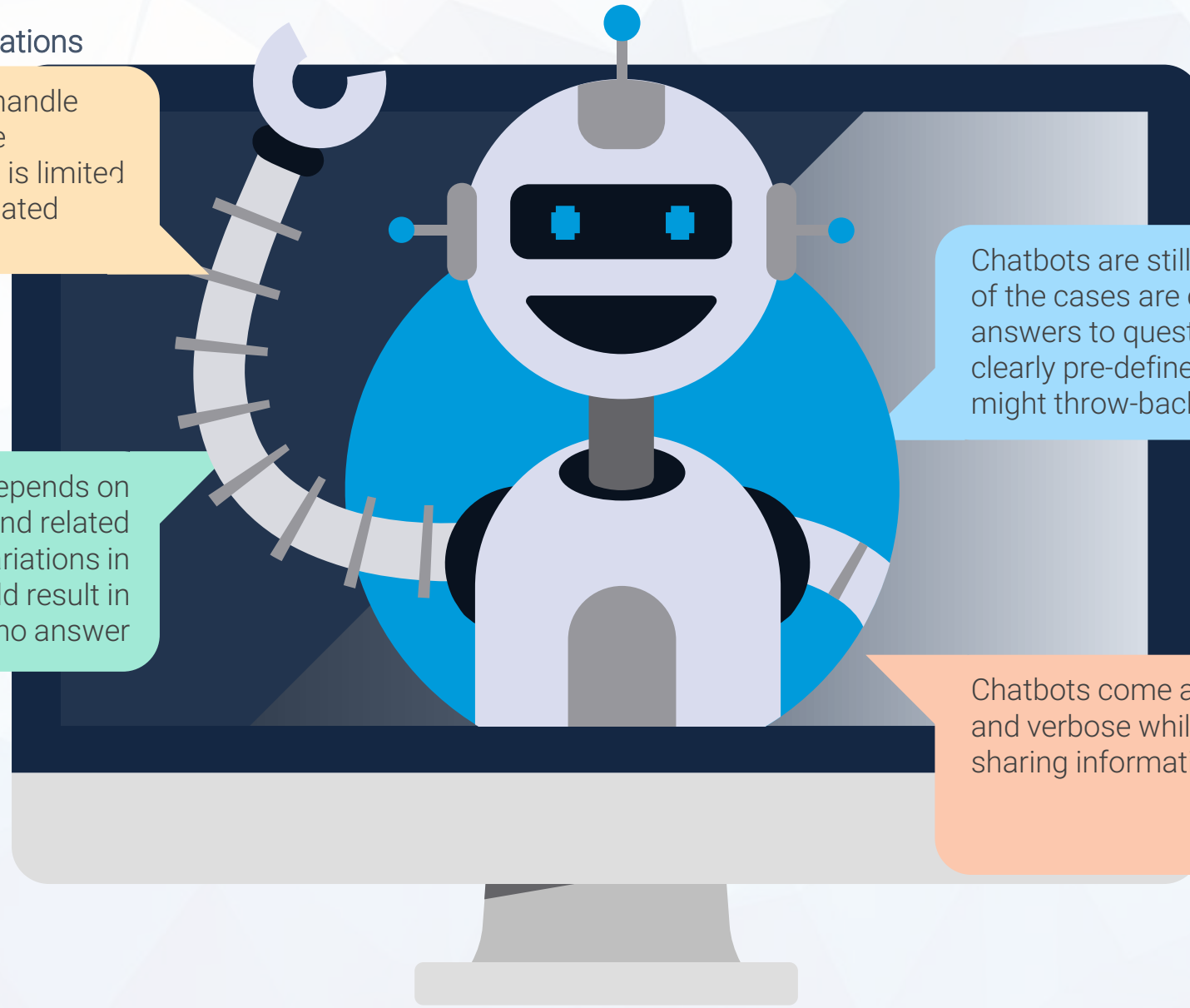
Response from Chatbot depends on how a question is asked and related language variations. Slight variations in how a question is asked could result in wrong / no answer

Getting wrong answers

Chatbots are still evolving and in most of the cases are capable of providing answers to questions that have been clearly pre-defined. Beyond those they might throw-back wrong answers

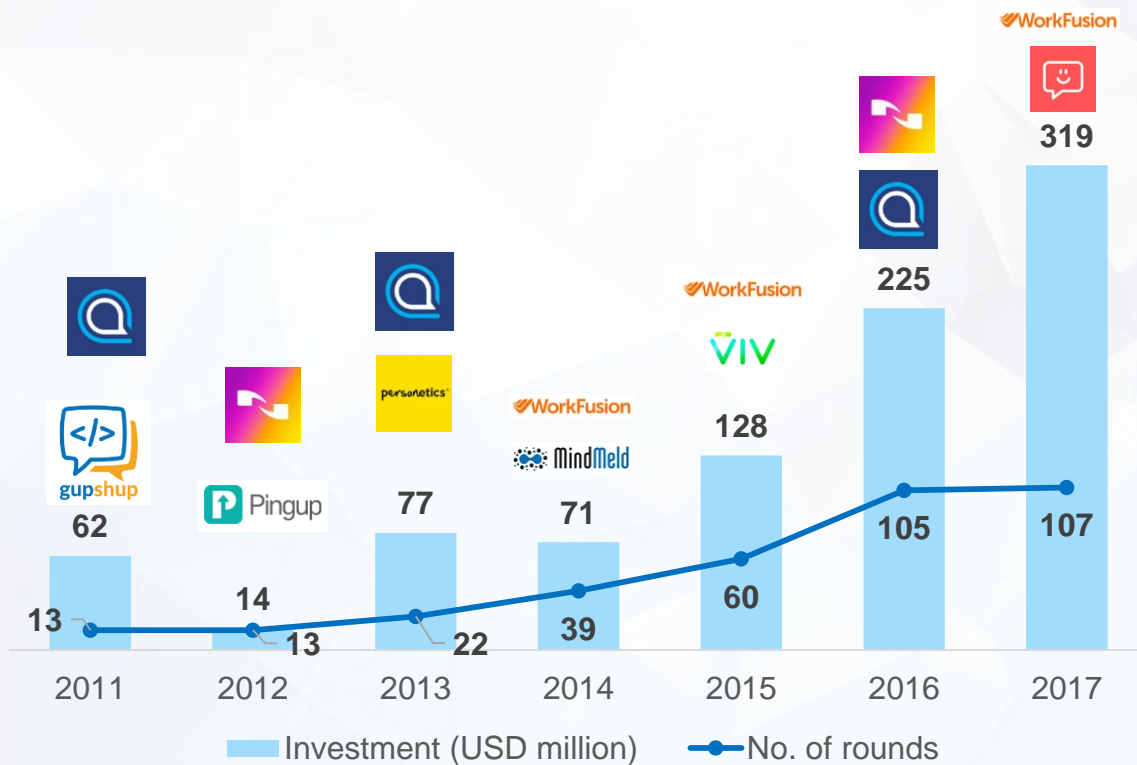
Lack human touch

Chatbots come across as impersonal and verbose while handling queries and sharing information with customers

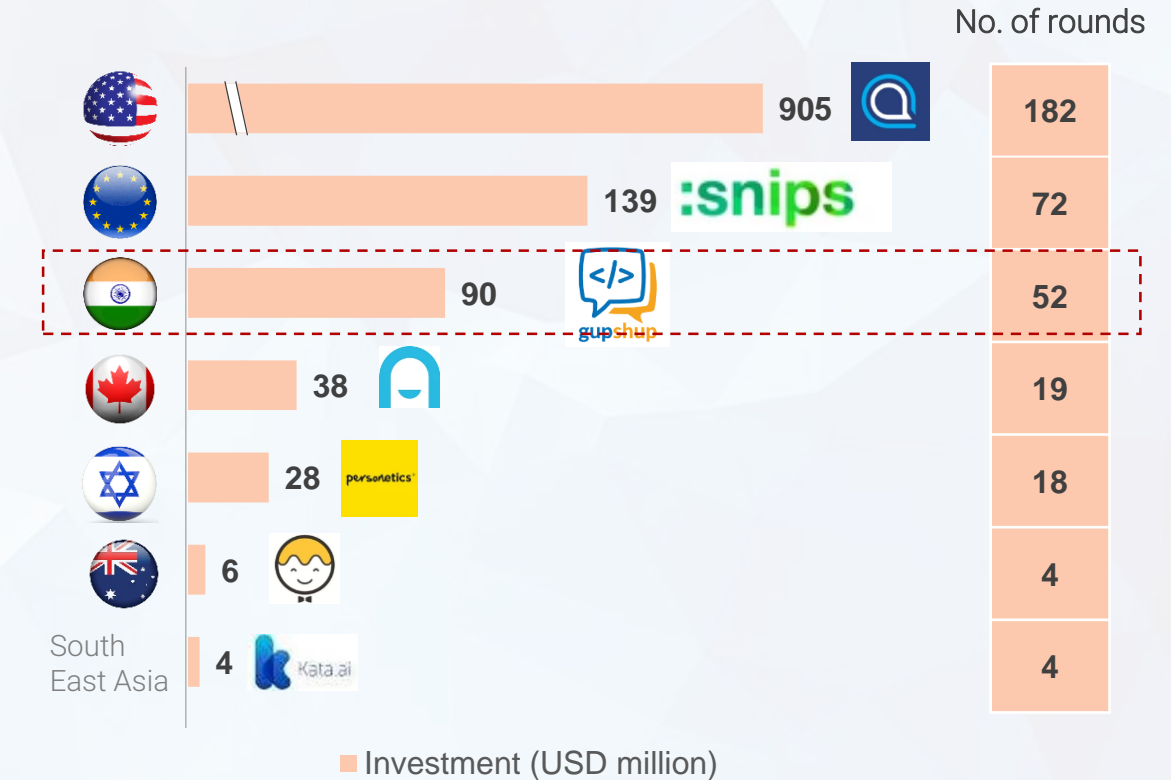


India is one of the most attractive Chatbot destination in terms of start-up investment; It ranks third after the US and the Europe

Chatbot Funding and Number of Rounds - Global



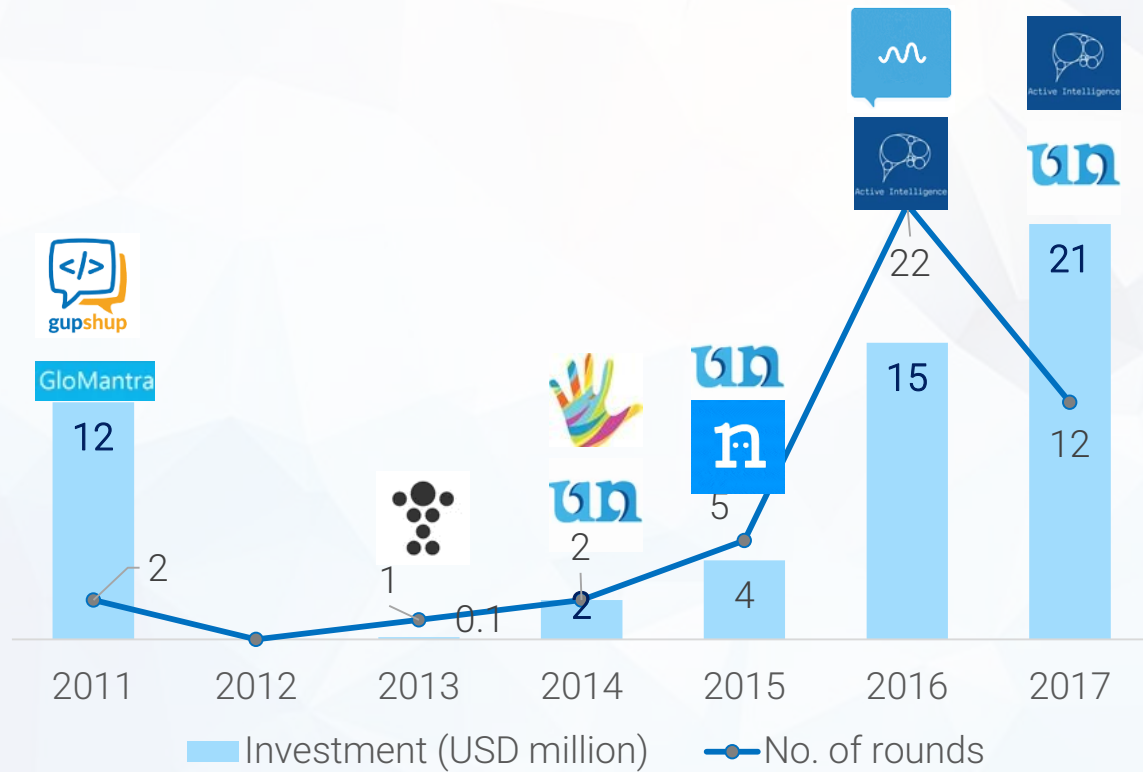
Total Chatbot Funding by Geography



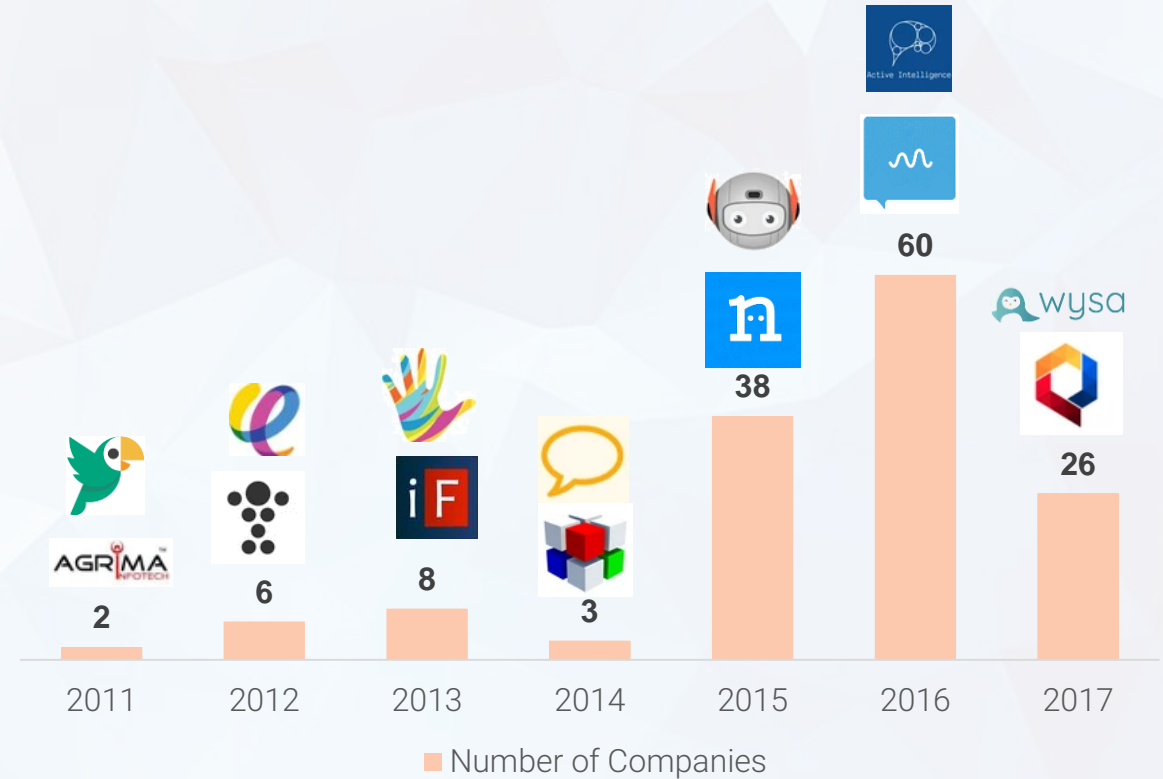
- Global investment in Chatbots witnessed a strong growth of 31.4% (CAGR) over 2011-17
- India continues to be an attractive market; positioned among top three countries in terms of total funding. Mumbai and Bangalore with total funding of USD46.8 million and USD22.1 million, respectively, lead funding in India

The market witnessed a relatively muted investment scenario over 2012-15, which grew more than four-folds in 2017

Chatbots Funding and Number of Rounds - India



Number of Companies Found - India



- Chatbots landscape in India is characterized by the presence of 150+ companies; 27 of these funded in last five years
- With an average ticket size of USD 3.5 million, Series A funding continues to lead seed funding which stood at USD0.9 million in 2017

In India, majority of funding has been into Virtual assistants, Enterprise functions and Development platforms

Portfolio Companies

Investor



Kae Capital



Touchkin



Wysa



Airwoot

Investor



Kalaari Capital



Active Intelligence



Haptik

Investor



Tracxn Labs



InFeedo



Joe Hukum

Investor

Microsoft Accelerator

Microsoft Accelerator

Investor

IDG Ventures India

IDG Ventures India

Investor

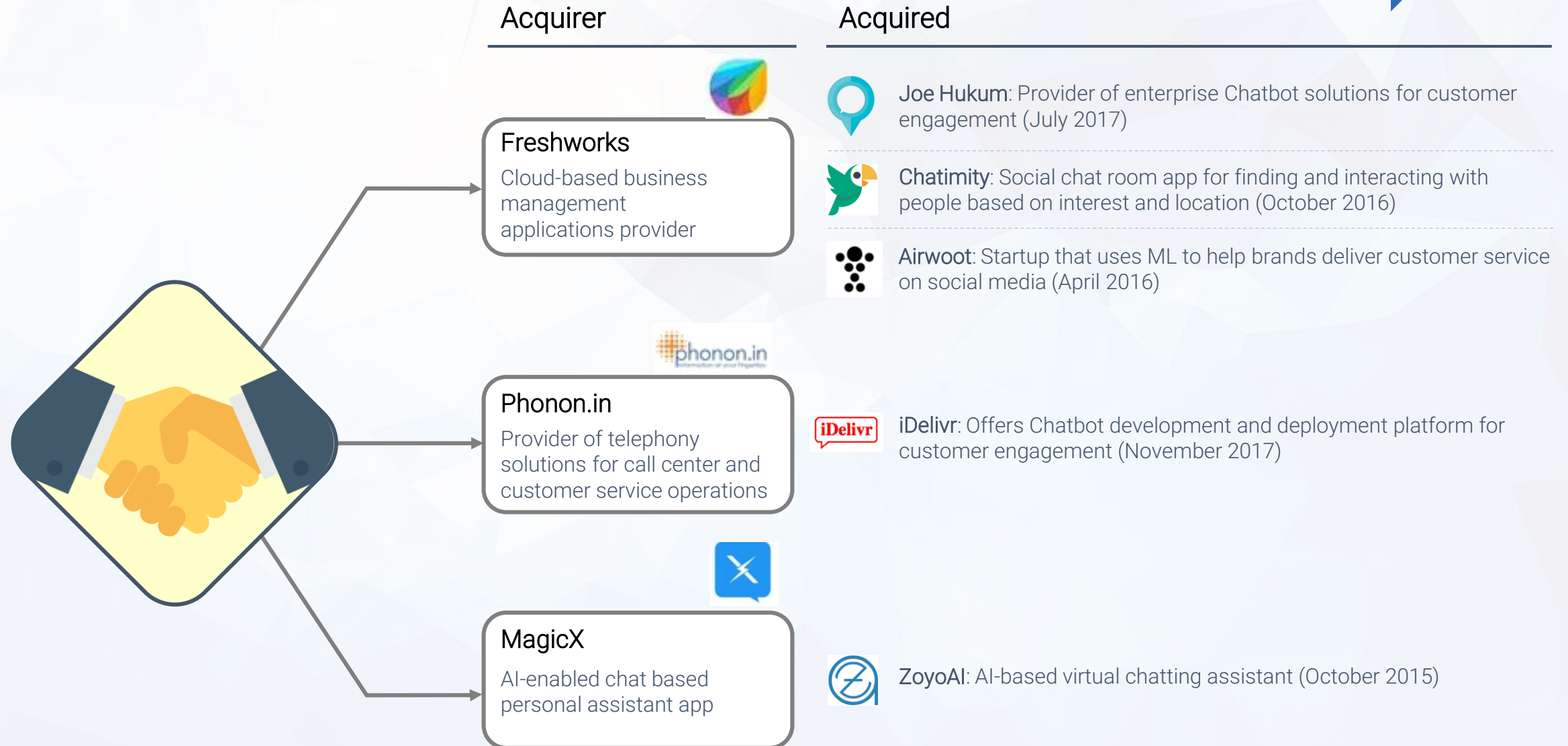
kstart

Kstart

Gupshup, one of the leading bot and messaging platform start-ups, is the highest funded Chatbot start-up in India



Chatbot start-up landscape is characterized by handful acquisitions, led by Freshworks



In the current scenario, text-based bots are more prominent as compared to voice-based bots; However, latter are expected to gain traction in the future

While text-based bots can converse with users through social networks, email or specific messaging applications, Voicebots go a step further and leverage technologies such as speech recognition, NLP, speech synthesis, artificial conversational intelligence, etc., to convert a simple IVR into a voicebot capable of solving customer queries over telephone call

Text-based bots



Voice-based bots



Input

Predominantly text, additionally, speech-to-text on devices such as smartphones, computers, etc.

Voice, on devices such as smartphones, computers, smart speakers, wearables devices and other IoT devices

Output

On-screen answers, images and videos.
Dependency on screen to view output

Output independent of screen. However, limitation to cast images and videos in case of smart speakers

Privacy

Considered more personal. Suitable for use in public places

Suitable for use at home, car, etc.
Uncomfortable to talk to in public/crowded areas

Adoption rate

Quite high as access is through mobile devices and computers which have lower barrier of entry

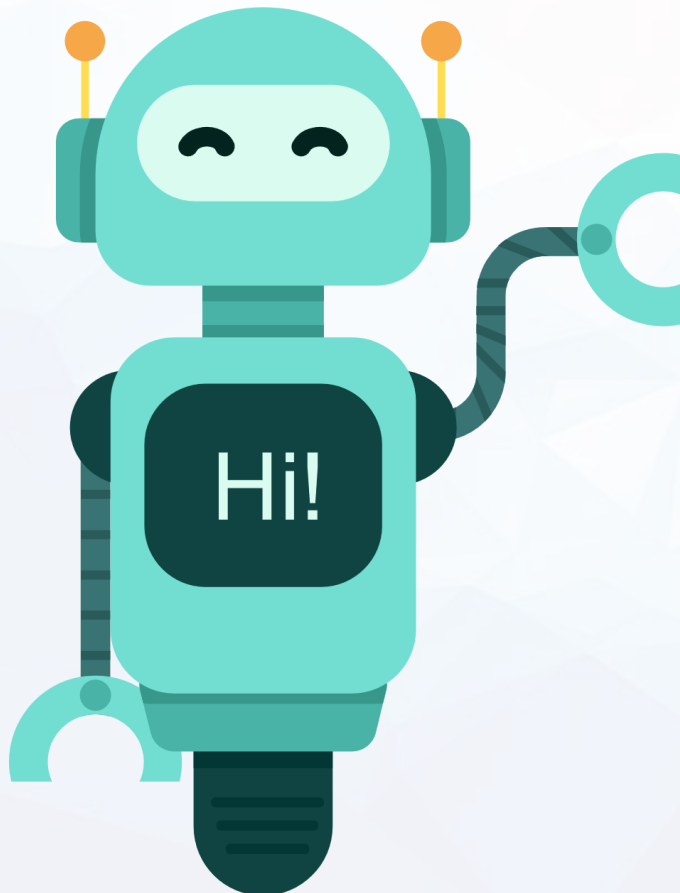
Moderate, expected to pick up as smart speakers become more mainstream

Voicebots are expected to go beyond the conventional applications in the future and will co-exist with text-based bots in our homes, cars, etc.

Illustrative



With technological advancements, future Chatbots are expected to be scalable, intelligent, cognitive and support multiple languages to provide personalized contextual responses



In the current form Chatbots are not fully equipped to deal with complex requests. They also lack personalization. Going forward, Chatbots must evolve to be more 'human-like' and 'smarter' to offer better customer experience and personalization

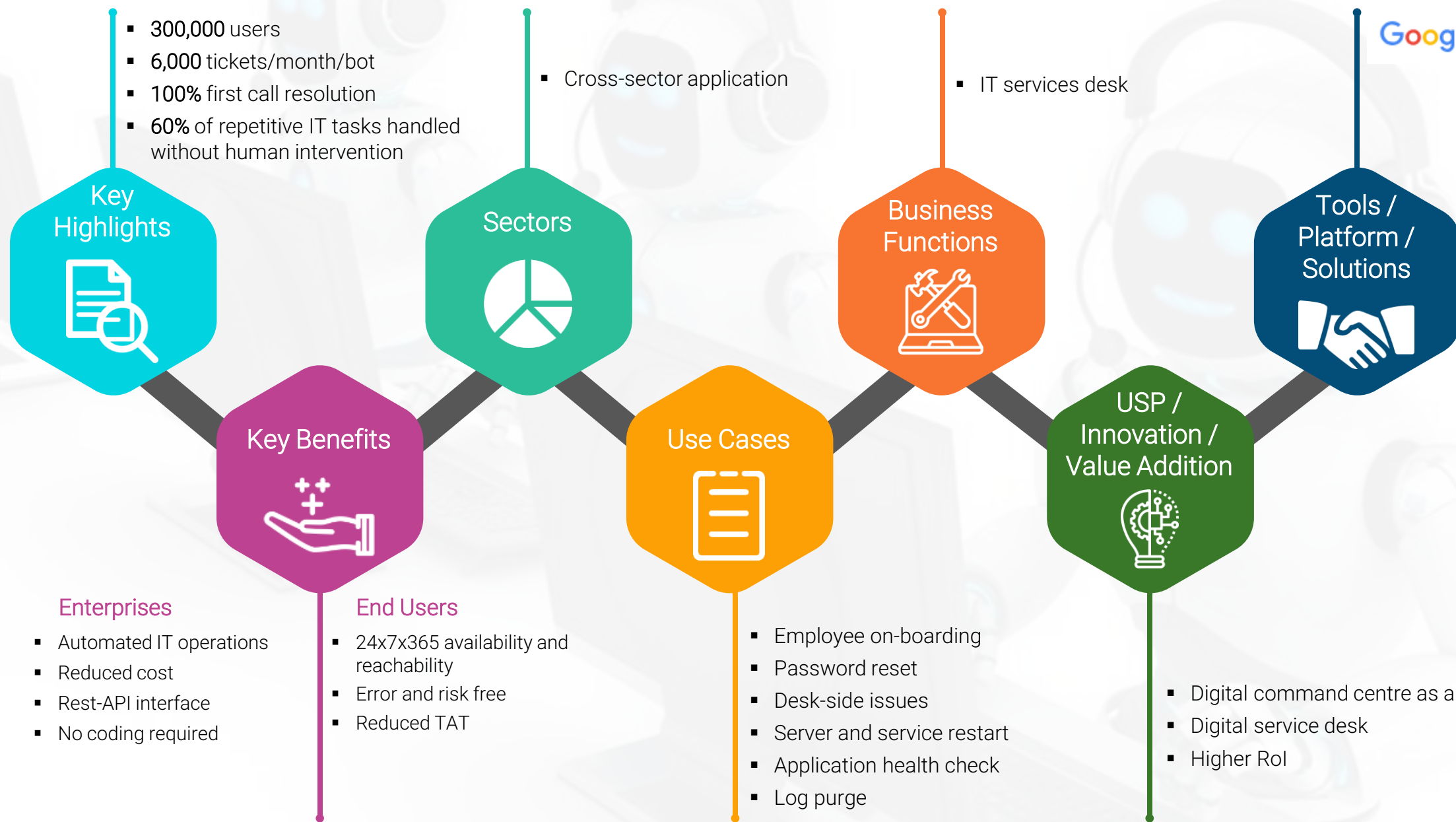


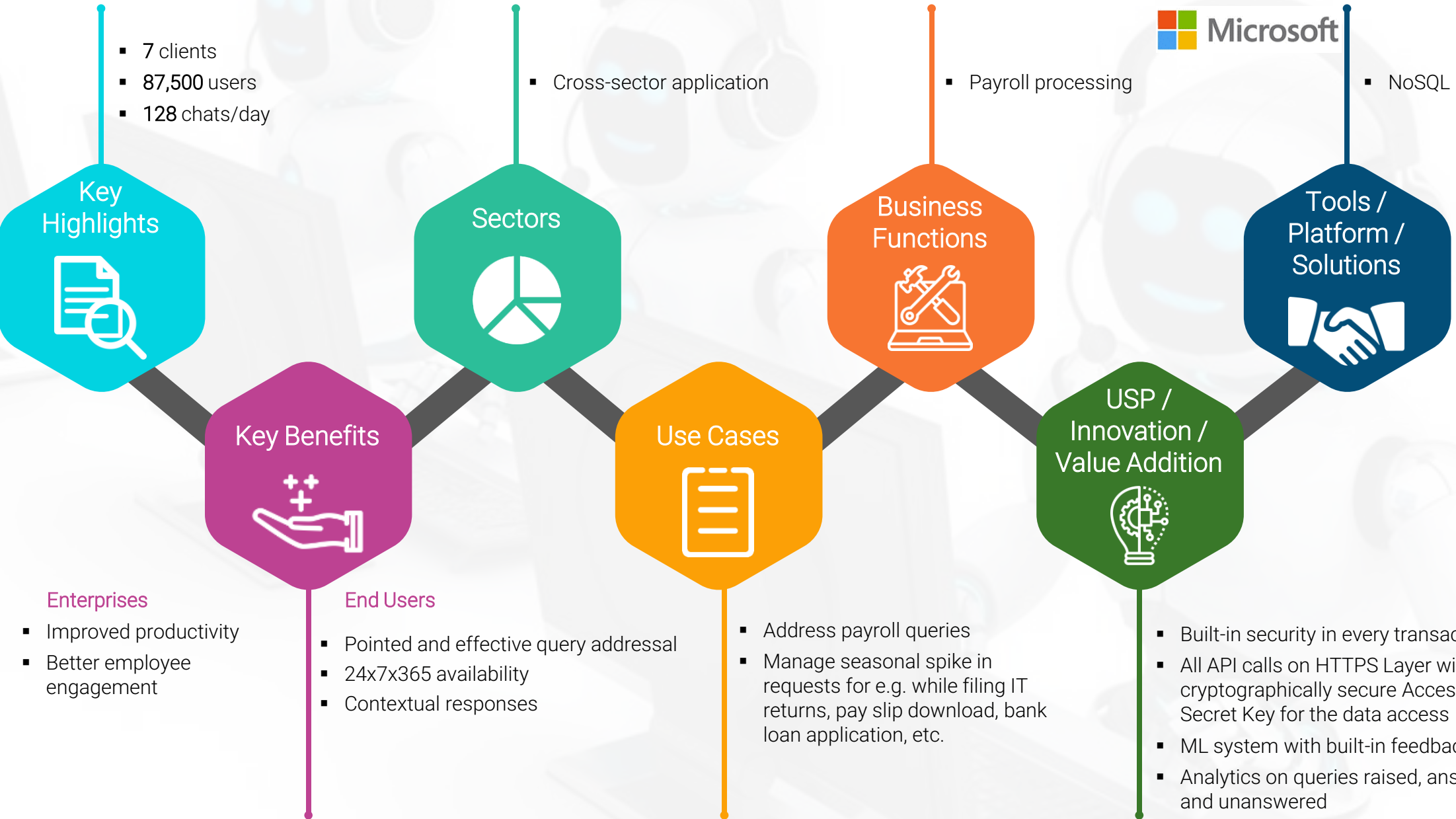
90% of the new internet users are expected to be non-English speakers in the next few years. In order to cater to these customers, Chatbot firms, linguists and technologists should come together for developing Chatbot solutions that support vernacular conversations

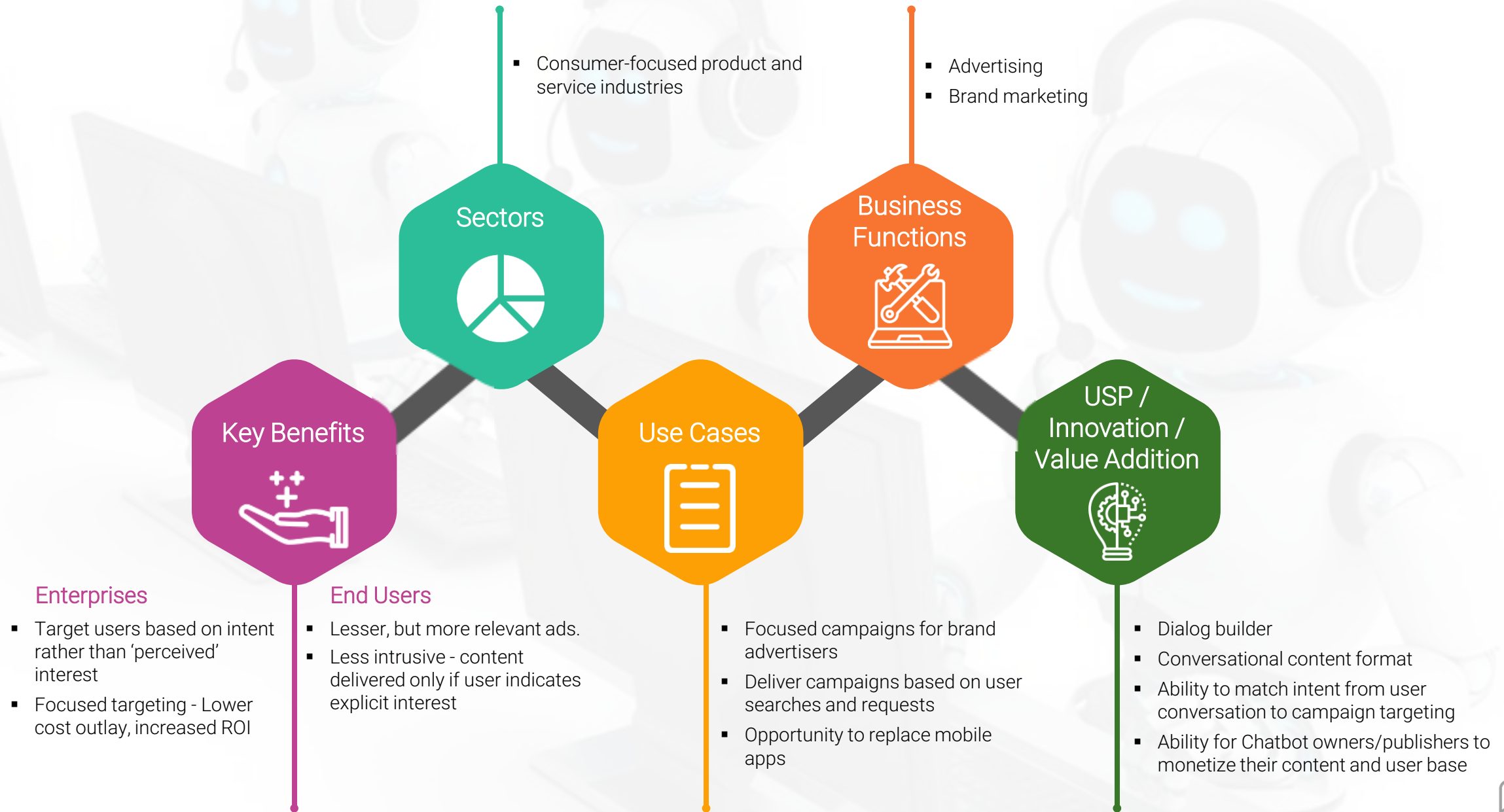


As AI, NLP and ML improve further, Chatbots' ability to understand vernacular conversations and make sense out of those conversations will improve, resulting in more reliable responses. However, Chatbots should not restrict to conversations, and should respond to inputs such as videos, gestures, etc.

Case Studies









- 50+ clients

Key Highlights



Sectors

- CPG, Retail, Insurance, Technology, Telecom, Banking



Business Functions

- Campaigns, Brand Tracking, CRM, Supply Chain, Contact Center



Course5 NLP Engine

- Node JS
- Python
- Laravel
- MongoDB
- Nginx
- Apache
- HTML 5

Tools / Platform / Solutions



Key Benefits



Enterprises

- Focus on self-service by executives
- Ability to have descriptive/causal insights along with predictive analysis
- Cost saved through reduced dependency on expensive analytics tools
- Time saved through reduced dependency on expensive analytics tools

End Users

- Accurate and real time data
- Multiple channels and devices
- Factual and descriptive insights
- Allows user input can vary, no set input pattern
- Summary e-mail to get a quick snapshot of the pain areas

Use Cases



Real-time insights such as:

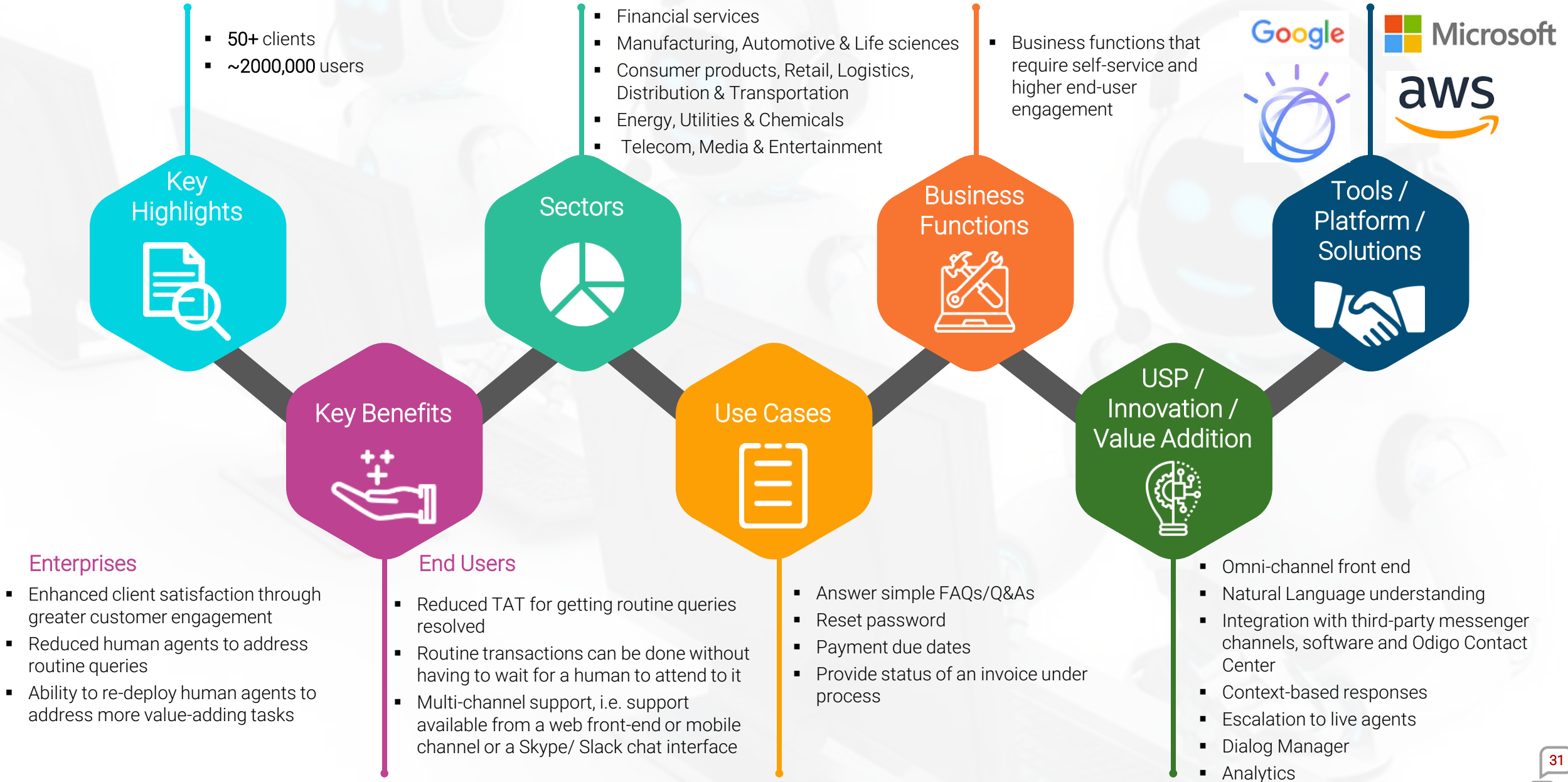
- Query sales metrics and get instant responses
- Descriptive insights that tell whether targets have been achieved, overachieved or underachieved
- Executive summary highlighting critical business metrics

USP / Innovation / Value Addition



- Engine developed on Advanced Deep Learning architectures
- Engine generates Natural Language for both voice and text (NLG)
- Engine not only measures intents, entities and parts-of-speech, it also understands the context behind each conversation, query and discussion

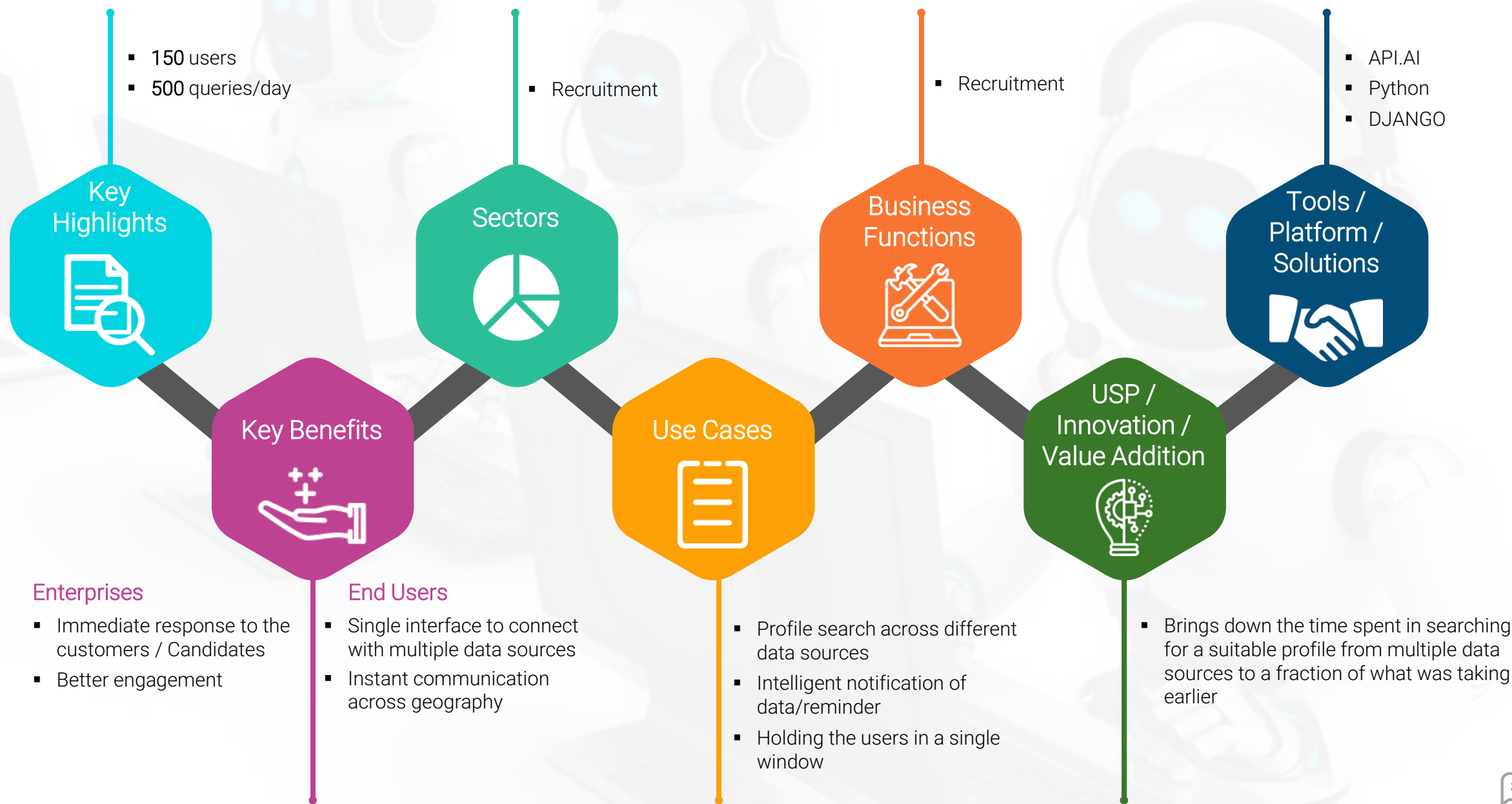


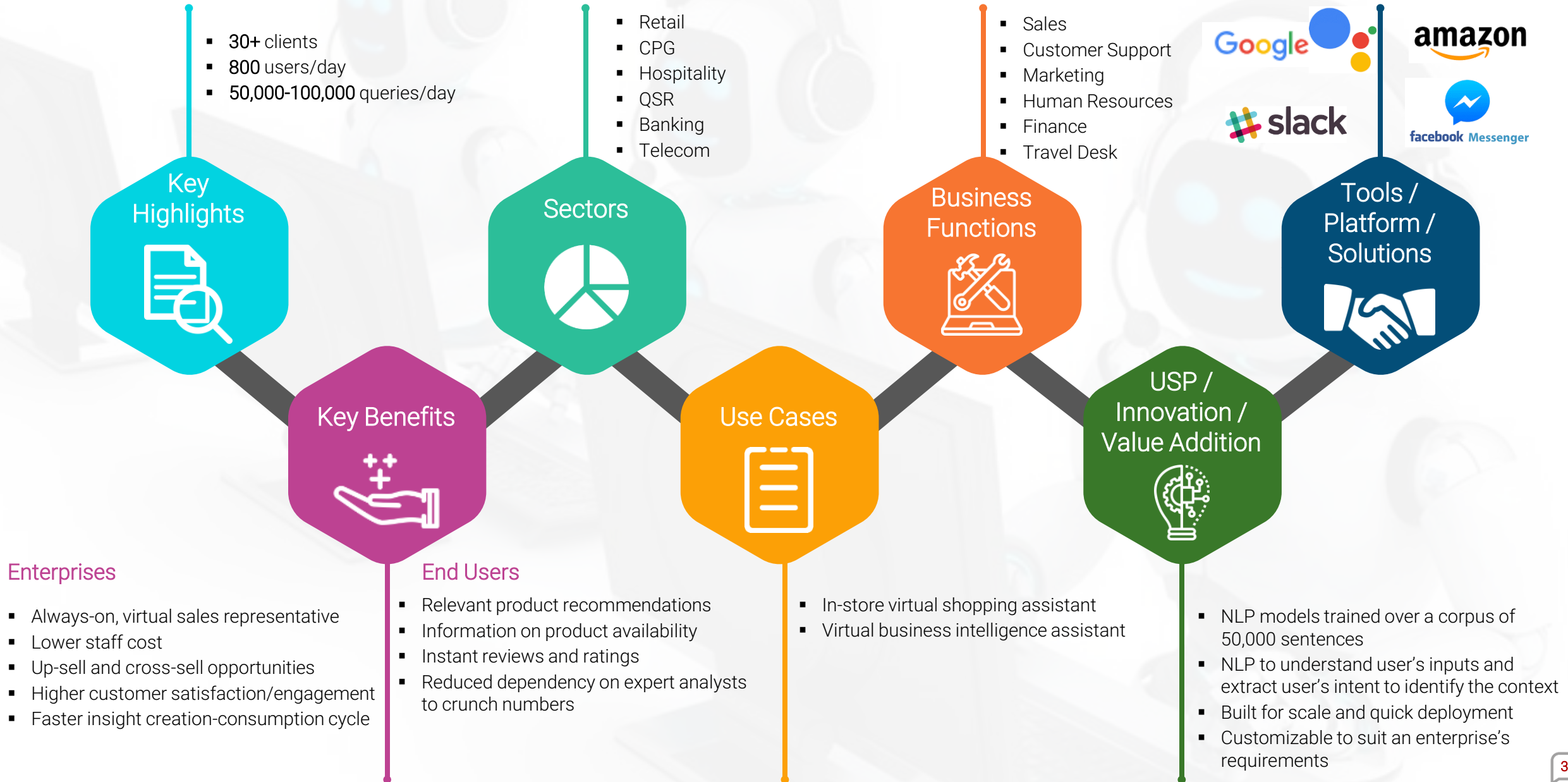












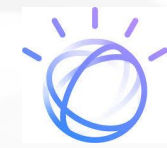




- 40+ clients

- All industry verticals

- HR
- Help desk
- Customer service



Key Highlights



Sectors



Business Functions



Tools / Platform / Solutions



Key Benefits



Use Cases



USP / Innovation / Value Addition



Enterprises

- Automate time consuming yet important processes
- Workflows resulting in greater efficiency and cost-savings
- Access and mine more data, allowing them to tailor their communication and advertisements in a targeted, data-driven manner

End Users

- Instant help for their needs
- Comfortable chatting or emailing
- Better satisfaction levels
- Modern and forward looking

- Learn and train to answer questions on a company's HR policies from HR manual
- Monitor emails and provide automatic responses depending on an email content
- Build KPIs and metrics on common questions, issues, etc.,
- Password reset, Wi-Fi-access issues

- Automatic question generation



- Language understanding
- Cognitive services
- SQL

▪ 40+ clients

▪ Financial services

▪ Audit

Key Highlights



Sectors



Business Functions



Tools / Platform / Solutions



Key Benefits



Use Cases



USP / Innovation / Value Addition



Enterprises

- Expand to new digital interaction channels of the future
- Enhanced operational efficiencies through self-service

End Users

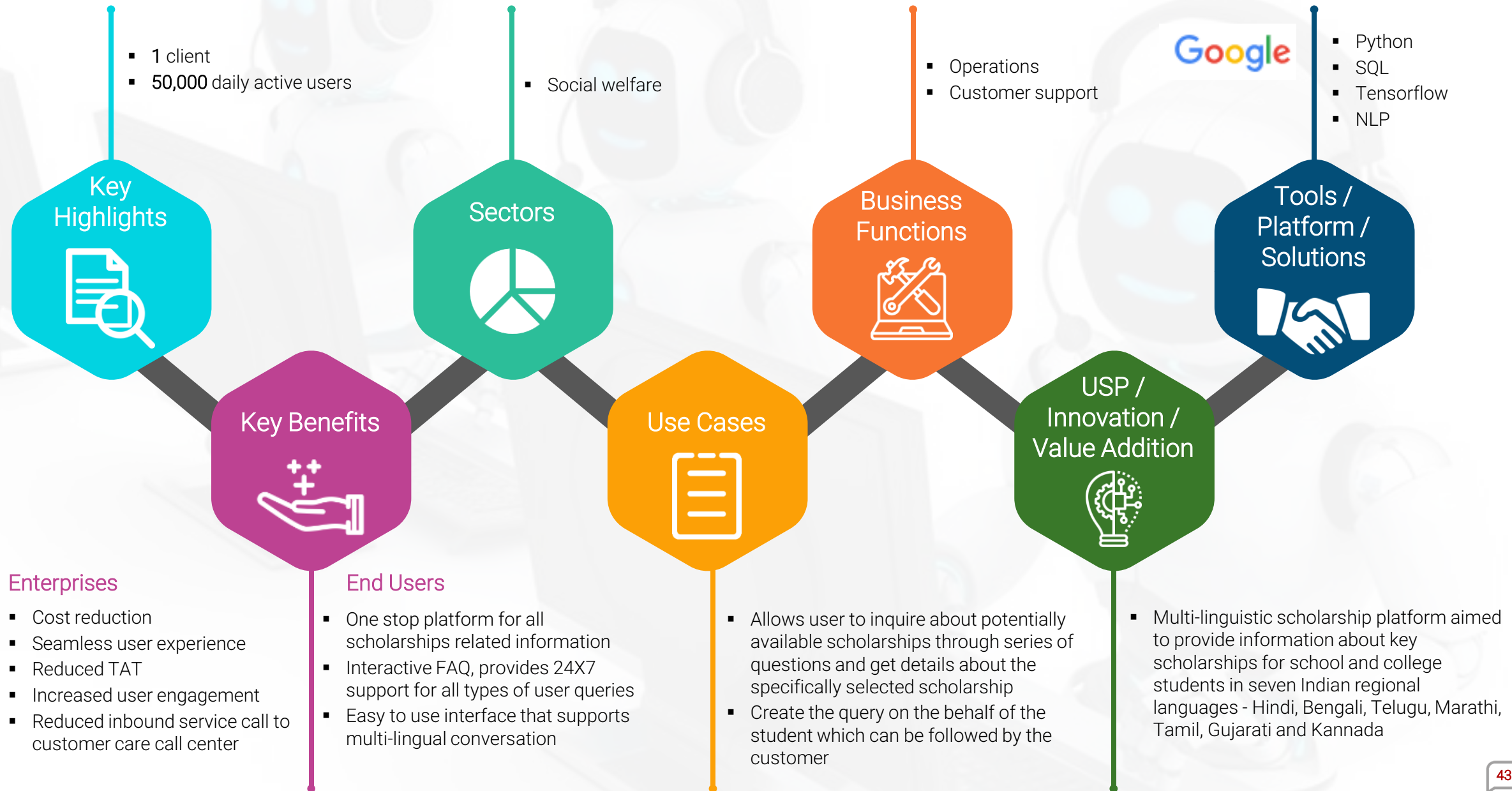
- Interactive channels for user interaction
- New modern user experiences

- Engage with the users and guide them on the critical initiative
- Solve the business problem of auditor engagement and solving auditor queries in a scalable manner
- Automated content authoring for business, allowing business self-service capability for business content update

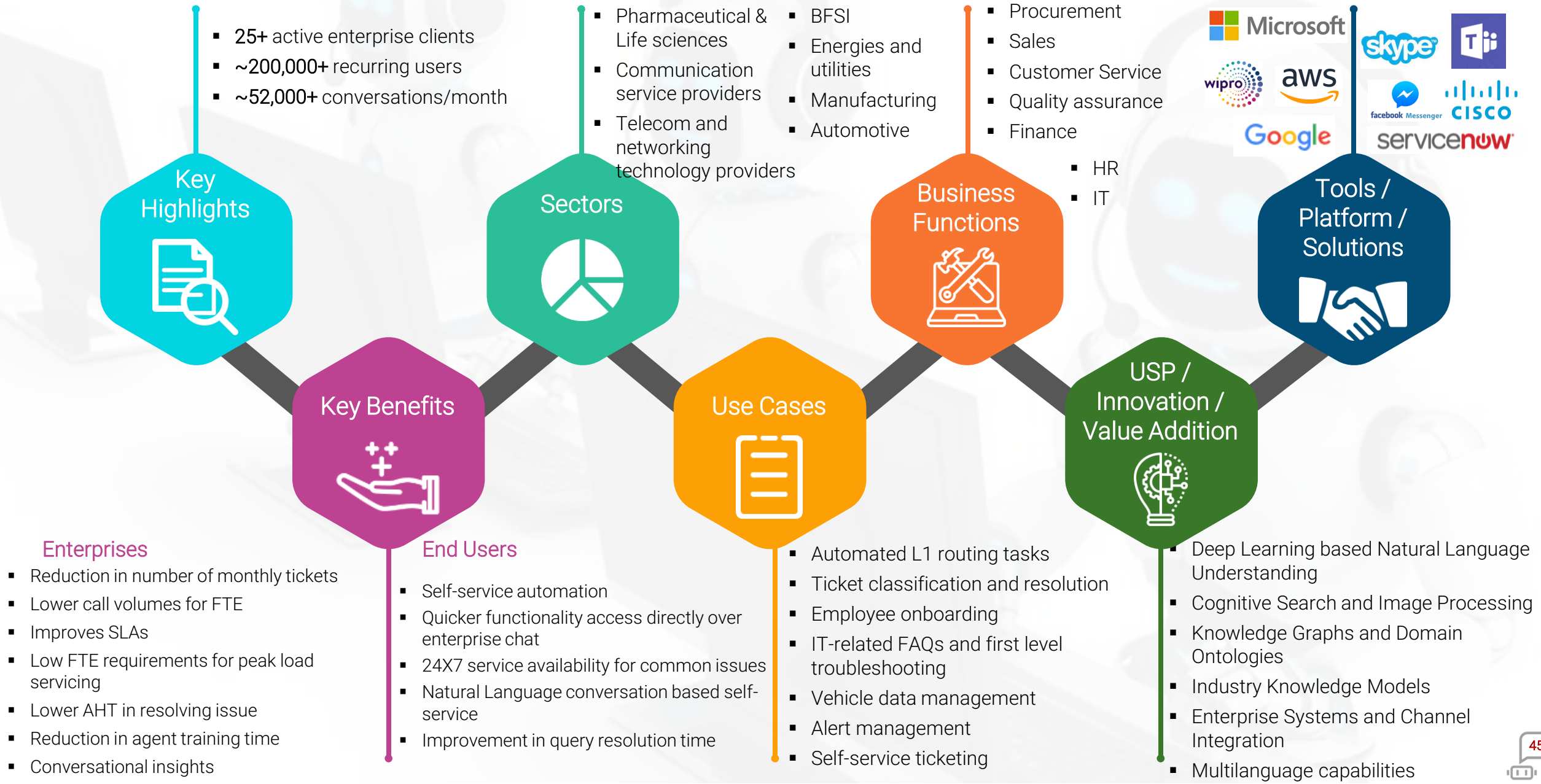
- Bot as a conversational interface to back-end systems
- Ability to have both speech and text interface
- Recognizable and powerful quick-wins
- Flexibility to business thru self-service content authoring
- Help move the firm into the digital future











- 35+ clients
- 10 million users
- 700,000 queries per day

Key Highlights



- BFSI, FMCG, Retail & e-commerce, Travel & Hospitality, Energy, Automotive, Pharmaceuticals & healthcare, Oil & Gas, and Manufacturing (other)

Sectors



- HR, Finance, IT, Customer Sales & Support, Enterprise Salesforce and Trade Partners

Business Functions



Tools / Platform / Solutions



Key Benefits



Enterprises

- Customer Acquisition and Engagement
- Customer Retention
- Employee Productivity
- Better ROI on marketing and advertising
- 20-30% reduction in support costs
- 20% increase in employee productivity
- 15% increase in the NPS score

End Users

- Available 24x7
- Omni-channel
- Personalization
- Self-service
- 30% growth in number of conversations

Use Cases



- Customer Support
- Digital Marketing
- E-mail Automation
- IVR Automation

USP / Innovation / Value Addition






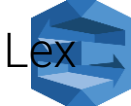














- Single Unified platform for voice and chat based conversations
- Supports 55+ global languages
- Integrated conversational analytics and conversational notifications

Appendix

Key players in the voice-assisted chatbot landscape and their customers

| Illustrative |

Key Contributors



About NASSCOM

NASSCOM is the industry association for the IT-BPM sector in India. A not-for-profit organization funded by the industry, its objective is to build a growth led and sustainable technology and business services sector in the country. Established in 1988, NASSCOM's membership has grown over the years and currently stands at over 2,500. These companies represent 95 percent of industry revenues and have enabled the association to spearhead initiatives and programs to build the sector in the country and globally. NASSCOM members are active participants in the new global economy and are admired for their innovative business practices, social initiatives, and thrust on emerging opportunities.

Disclaimer

The information contained herein has been obtained from sources believed to be reliable. NASSCOM disclaims all warranties as to the accuracy, completeness or adequacy of such information. NASSCOM shall have no liability for errors, omissions or inadequacies in the information contained herein, or for interpretations thereof.

The material in this publication is copyrighted. No part of this report can be reproduced either on paper or electronic media without permission in writing from NASSCOM. Request for permission to reproduce any part of the report may be sent to NASSCOM.

Usage of Information

Forwarding/copy/using in publications without approval from NASSCOM will be considered as infringement of intellectual property rights.

NASSCOM®

Plot 7 to 10, Sector 126, Noida 201303, India

Phone: 91-120-4990111

Email: research@nasscom.in, Web: www.nasscom.in



Visit our e-community at <https://community.nasscom.in>



Thank You
