Elevating telecom customer service

Generative AI answers the call

Experts
on this topic

↗

Vanessa Mascarenhas

Senior Manager, AI Customer Channels
TIM Brasil
linkedin.com/in/vanessa-mascarenhas-484312b
vcarneiro@timbrasil.com.br

Vanessa has been at TIM for about 11 years, transforming conventional service into a new experience. During this period, she has accumulated experience in project management focused on digital transformation and artificial intelligence solutions. She has degrees in computer science and IT governance.

Stephen Rose

General Manager, Global TME and Distribution
IBM
linkedin.com/in/thestephenrose
stephen.rose@ibm.com

As a general manager at IBM, Stephen is driving multibillion-dollar P&L by delivering technology, products, and solutions to CSPs and enterprise clients. He has spent the last 20 years working in technology, media, and telecommunications (TMT) strategy consulting. He guides fixed and wireless telecom operators, industrial, webscale, private equity, and government sector clients at the intersection of business change, digitalization, and technology. He is active across academic and industry forums that are instrumental in shaping the future of TMT sector growth. He has a master's degree in strategy and organizational leadership from the University of Oxford.

Rahul Kumar

Senior Partner and Vice President,
IBM Consulting
Global Industry Leader for Telecom and Media
IBM Industry Academy Member
ca.linkedin.com/in/1rahulk
rahulk@ca.ibm.com

As a global industry leader, Rahul supports the IBM Consulting™ industries mission of advancing the transformation agenda, opportunities, solutions, and delivery for communications service provider (CSP) clients across the globe while also contributing to industry thought leadership. With over 23 years of consulting experience in the telecommunications industry, Rahul has worked with leading CSPs on their digital transformation, lead-to-cash, omnichannel, and business support services (BSS) transformation engagements. He has driven significant business value together with a consistent and seamless experience for their customers and users. Rahul is also an Industry Diamond badge holder at IBM.

Experts
on this topic

↗

Gianluca Palumbo

Italy Data and Technology Transformation
Service Line Leader
IBM Consulting
it.linkedin.com/in/gianlucapalumbo
gianluca.palumbo@it.ibm.com

Gianluca works currently as the service line leader for data and technology transformation. With a technical background, he has more than 20 years of experience in the telecommunications industry with a keen focus on topics related to artificial intelligence. He acted as chief architect for several telecom contact center solutions that included the adoption of innovative methodologies such as artificial intelligence, intelligent automation, and advanced analytics. He is currently the reference for IBM Consulting Italy for watsonx and generative AI.

Priya Kurien

Global Telecommunications Leader
IBM Institute for Business Value
linkedin.com/in/priya-kurien
priya.kurien@ibm.com

Priya leads the telecom research area for the IBM Institute for Business Value. She is a telecommunications engineer by training and has worked with over a dozen telecom providers across four continents. She brings her deep and broad understanding of the telecom value chain, partnerships, competition, regulation, automation, and advanced technologies to help clients understand the business value of technology. Priya has special interests in 5G enterprise commercialization and is a member of the AI Expert Working Group for UKTIN and the GSMA IoT Forum.

Foreword

Early in this report is a very important statement: "AI is not new to the telecom industry." Traditionally deployed across multiple use cases—including customer care, service and operations management, and network management—AI is well known to communications service providers (CSPs). And with networks and services only becoming more complex, use of AI alongside automation will grow. In fact, in the GSMA Intelligence report, *2023 and the Automation Imperative,* CSPs ranked service complexity as the top rationale for automation in both network and service domains.

Yet, while traditional AI has fueled transformative automation capabilities, generative AI opens the door to a host of new possibilities. As the name implies, this next evolution of AI can generate new content. What has truly caused it to dominate conversations across dinner tables and boardrooms, however, is its rapid democratization, which has helped adoption and use cases scale at an extraordinary pace.

For CSPs, this tempo presents an important dynamic. The volume of potential use cases has implications in terms of network operations, governance, skilling, and more. While some use cases may be obvious, others are not. For example, improved customer care is well understood and a popular starting point. But the use of generative AI for predictive maintenance and threat mitigation is expected to grow in the future, per GSMA Intelligence's 2023 Network Transformation survey. The generative AI story for the telecom industry will be very different tomorrow than it is today. Luckily, virtually everyone seems to understand this.

In the here and now, CSPs can pursue an early win with generative AI in their c ontact centers, building on their use of traditional AI while addressing a key strategic priority of delivering an excellent customer experience. However, as the report explains, along with the incredible potential of generative AI comes the need for a modern technology foundation and attention to a new set of risks. CSPs that can successfully balance these areas can advance even greater efficiencies in their organizations with AI.

Peter Jarich
Head of GSMA Intelligence

Key takeaways

CSPs can use AI to reimagine customer service and the experience of the employees providing it.

▇ CSPs can reinvent customer care with generative AI.

Nearly all (97%) communications service providers (CSPs) said conversational AI had a positive impact on customer satisfaction.[1] This has paved the path for generative AI.

▇ CSPs adopting AI in their contact centers are at different stages of maturity.

Most need to modernize their technology foundation before pursuing generative AI.

▇ Embracing generative AI requires foreseeing risks and strengthening AI governance.

Generative AI creates new risks that business leaders can navigate by planning and working with knowledgeable partners.

Enriching critical customer interactions

In a competitive industry where subscriber growth rates have stagnated in the low single digits and customer churn runs high, revolutionizing the telecom contact center with generative AI promises to be game-changing.[2]

By enabling less robotic, more human-like interactions with virtual agents and equipping human agents with more robust insight, generative AI can help CSPs wow customers, build brand loyalty, and boost revenue.

AI in contact centers is not new to the telecom industry. CSPs have been early and successful adopters of conversational AI, which uses natural language processing (NLP) to power virtual agents and chatbots to resolve simple customer queries. The gains are impressive. In research by the IBM Institute for Business Value (IBM IBV), 97% of CSPs using virtual agent technology (VAT) reported a positive impact on customer satisfaction—the most of 12 industries surveyed.[2]

But conversational AI has limits. While it automates tasks and provides predefined responses to customer inquiries, complex queries exceed a basic chatbot's capabilities. And dialects and background noise challenge its ability to understand requests or questions.

AI in contact centers is not new to the telecom industry. Early adoption of conversational AI led to positive impacts on customer satisfaction.

Introducing generative AI

Adding generative AI—the latest AI breakthrough—alongside conversational AI positions CSPs to reimagine the omnichannel service experience for their customers (see Perspective, "Traditional versus generative AI" on page 8). Because the AI models that are the basis for generative AI can be fine-tuned using industry- or organization-specific data, they enable virtual agents to be more effective and to appear more intuitive. Specifically, virtual agents can use generative AI to:

– *Learn:* interpreting context and nuanced intent while learning from conversations to deliver more accurate and relevant responses.[4]

– *Detect:* deciphering complex inquiries, recognizing a customer's preferences, and discerning emotions such as frustration or confusion.

– *Adapt:* aligning accents with those of customers; serving vulnerable populations such as the elderly, for whom they can slow down text-to-speech; and supporting diverse vocabularies, such as different words used for "invoice."

– *Create:* delivering more natural conversational responses, generating and analyzing call summaries for insights, or rendering new customer-facing assets and documentation. In fact, one large global telecom identified $20 million savings in operational improvement from insights gleaned through generative AI analysis of agent conversations.[5]

– *Anticipate:* synthesizing customer and company data from across platforms and channels, creating more precise responses in real time while also predicting and resolving potential issues before customers are even aware of them.[6]
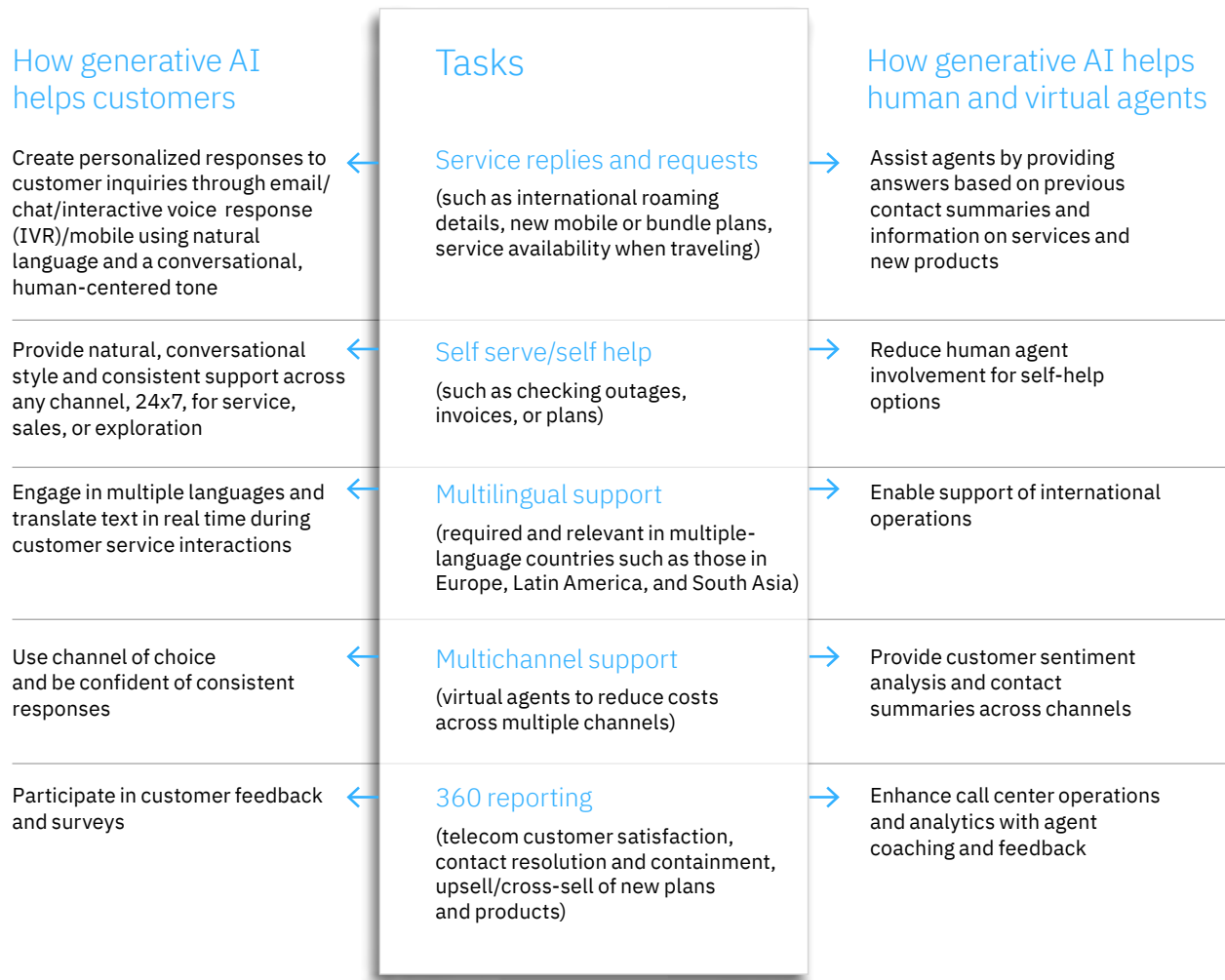
Empowering customers, elevating employees

Generative AI can enhance the contact center experience for both employees and customers with smarter service replies and requests, self-help functionality, multilingual and multichannel capabilities, and 360-degree reporting of actionable insights (see Figure 1).

Generative AI models enable intelligent, unified customer and employee care.

How generative AI helps customers	Tasks	How generative AI helps human and virtual agents
Create personalized responses to customer inquiries through email/chat/interactive voice response (IVR)/mobile using natural language and a conversational, human-centered tone	**Service replies and requests** (such as international roaming details, new mobile or bundle plans, service availability when traveling)	Assist agents by providing answers based on previous contact summaries and information on services and new products
Provide natural, conversational style and consistent support across any channel, 24x7, for service, sales, or exploration	**Self serve/self help** (such as checking outages, invoices, or plans)	Reduce human agent involvement for self-help options
Engage in multiple languages and translate text in real time during customer service interactions	**Multilingual support** (required and relevant in multiple-language countries such as those in Europe, Latin America, and South Asia)	Enable support of international operations
Use channel of choice and be confident of consistent responses	**Multichannel support** (virtual agents to reduce costs across multiple channels)	Provide customer sentiment analysis and contact summaries across channels
Participate in customer feedback and surveys	**360 reporting** (telecom customer satisfaction, contact resolution and containment, upsell/cross-sell of new plans and products)	Enhance call center operations and analytics with agent coaching and feedback

Traditional versus generative AI[7]

Many organizations have adopted traditional AI for its ability to detect patterns, generate insights, predict outcomes, and power automation based on a set of training data. Traditional AI is leveraged in contact centers through conversational AI, which uses virtual agent technology to serve end users. Conversational AI includes the automation of dialogue and back-end processes through technologies such as machine learning, natural language processing and generation, sentiment analysis, language translation, speech-to-text, robotic process automation, and optical character recognition (OCR.) Virtual agents, or chatbots, are a specific instance of VAT.

Generative AI surged onto the scene in 2022 with the release of Open AI's ChatGPT, illuminating breakthroughs in AI technology and natural language processing. As the name suggests, AI has moved beyond repeating learned content to generating new content—including text, videos, images, music, and code—based on its interpretation and manipulation of raw pre-existing data.

The differentiator has been the evolution of foundation models. In contrast to traditional AI, where each model is trained on its own data set to complete a task, generative AI uses foundation models, which are self-trained on a vast amount of unlabeled data. The foundation model becomes a starting point that can be adapted and fine-tuned to many applications or tasks using smaller sets of industry- or company-specific, labeled, and unlabeled data. This makes foundation models flexible, efficient, and reusable, helping accelerate AI adoption.

AI has moved beyond repeating learned content to generating new content—including text, videos, images, music, and code.

Large language models (LLMs) are a specific type of foundation model that has been explicitly trained on large amounts of text data for natural language processing tasks. For CSPs, this data could come from transcripts of customer interactions with the contact center. Once trained, an LLM can be deployed through various formats, such as chatbots, and through APIs in support of other applications.

Because generative AI is far from perfect—it can have shortcomings in areas such as efficacy, accuracy, and trust—organizations must proceed with a keen awareness of risks when pursuing it.

Traditional AI

Follows predefined rules and patterns applied to specific sets of data to solve problems, make predictions, and automate tasks

Common telecom tasks using traditional AI

Predict customer churn

Track NPS scores

Detect network anomalies

Conversational AI for virtual agents/chatbots

Generative AI

Generates new content based on patterns learned from massive datasets of existing content

Potential telecom tasks using generative AI

Network optimization

Personalized product, service, or plan recommendations

New product, service, or plan development

Customized explanatory videos for invoices

Call summaries and analysis

Customers want it to be as quick and easy as possible to resolve invoice, technical, and service queries, or to explore new options. Generative AI empowers them by allowing them to handle their needs themselves through a richer self-service experience in their channel of choice. They also benefit from proactive care. For example, AI can keep customers updated on outages or service order status, detect and resolve roaming issues without customer involvement, or present better value propositions through enhanced offers.

Equally, generative AI can improve the stressful lives of human agents because they can be primed to deliver high-touch care through in-depth resources and AI coaching that includes simulated virtual learning and just-in-time feedback and support. Generative AI tools search extensive repositories of documentation and call summaries, feeding agents answers that help solve customers' complex requests.

Additionally, agents can make each point of contact count by upselling or cross-selling based on suggestions from generative AI—turning those interactions into a critical revenue-driving advantage. According to research from the IBM Institute for Business Value, telecom sales transactions through

digital channels account for 53% of revenue, and most CSPs said they are using current conversational AI capabilities on their websites and mobile applications to support sales.[8] Generative AI can advance the cause, integrating customer data from device, network, and service usage; mobile applications; locations; and invoices to generate personalized recommendations.[9]

Global telecom CEOs have named customer experience and productivity/profitability as their top priorities, and cross-industry executives ranked customer care as their leading generative AI use case.[10] Three in four US CEOs predict those organizations with the most advanced generative AI will capture the competitive edge.[11] The opportunities are there for the taking, but are CSPs ready to make the leap from the current state of contact centers to using generative AI to help fuel growth? Are they prepared to address the risks and responsibilities that come with this new technology?

What follows is a framework that introduces the stages of AI adoption in telecom contact centers— from no AI to an AI-first mindset where generative AI can deliver differentiating services (see Figure 2). We then describe the fundamentals that CSPs must work toward for an AI-first approach to customer care. A discussion of risks notes important consider- ations for generative AI adoption, and an action guide outlines steps telecom leaders can take to prepare for reinventing their contact centers using generative AI.

A group of global cross-industry executives ranked customer care as their leading generative AI use case.[10]

FIGURE 2

**CSPs are at various maturity stages
for AI adoption in their contact centers.**
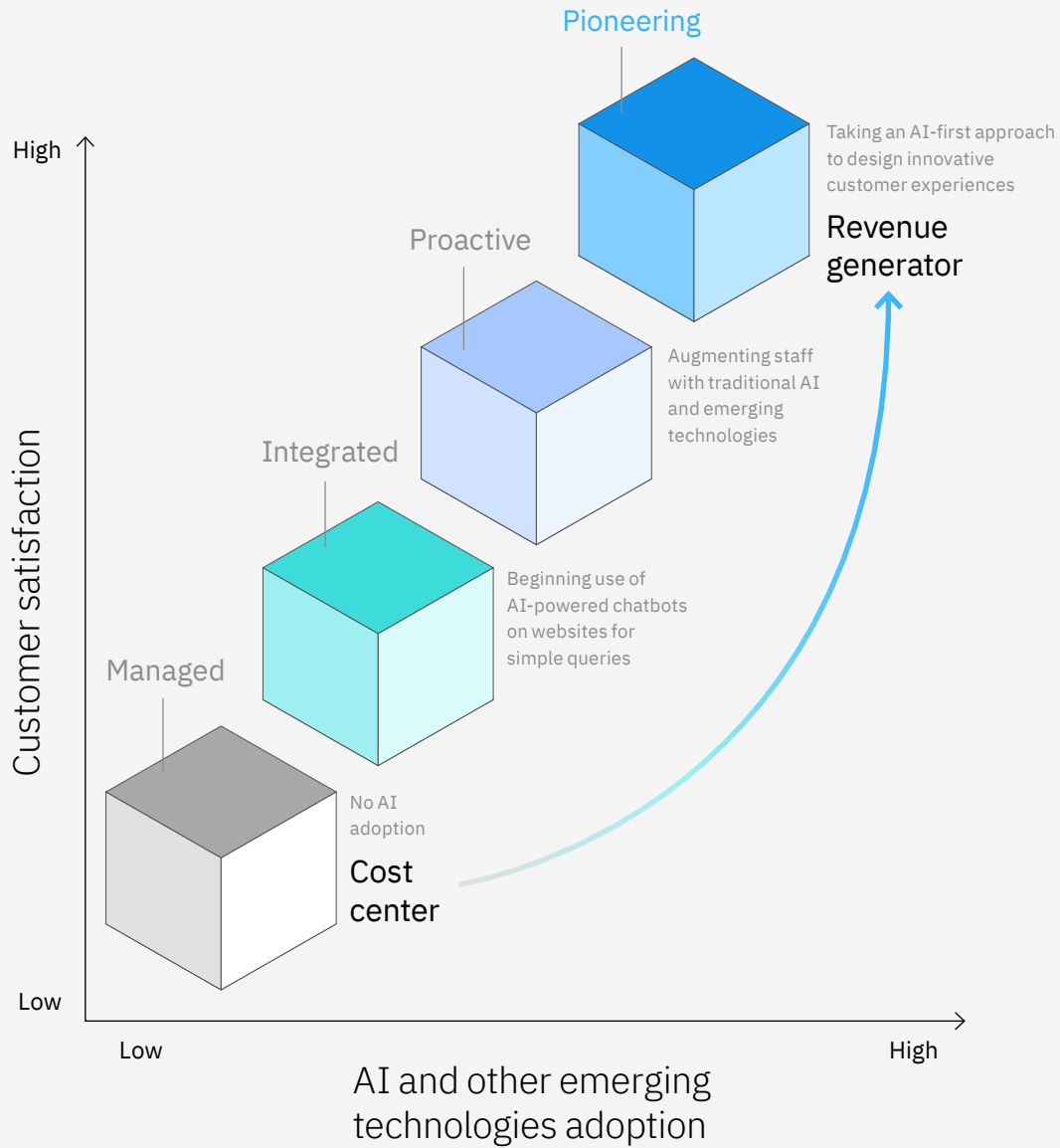
Shifting customer care from cost center to revenue generator

Based on their varying degrees of AI adoption, most CSPs will not be able to easily jump from their current states of AI adoption to full implementation of generative AI capabilities.

In our experience, we see that most CSPs are in what we call the Integrated entry-level AI stage. Some of the larger, more innovative companies are in the Proactive stage and progressing toward Pioneering, where new talent, skills, and processes are required to take an AI-first approach. The Managed stage is intended to establish context for the other stages.

Stages of AI adoption in telecom contact centers

Managed	Focused on internal efficiency, not customer experiences
AI adoption	None
People	Agents have limited training specific to the company or the industry. Multiple, dispersed teams support many call types, languages, and time zones.
Processes	Manual, designed to address most common issues and route customers. Minimal measurement of KPIs or customer satisfaction.
Data/technology	Multiple IVR and dual-tone multifrequency (DTMF) systems. Systems to support technical checks of the line depending on the type of service or customer. Multiple disconnected systems for CRM, invoices, and service provisioning. Data siloed in multiple systems and repositories.

Integrated	Beginning to use AI as a tool for improving customer satisfaction
AI adoption	Entry-level use of AI-powered chatbots on websites and IVRs.
People	Functional teams support specific call types, languages, and time zones. Agents are better trained to interact and route calls. Support teams are consolidated within a "contact center hub."
Processes	Workflows are integrated across multiple systems, improving manual processes and support of customer requirements. Information from workflows (such as roaming or outage details) is available on multiple channels (websites, IVR). Limited measurement of KPIs and customer satisfaction.
Data/technology	Data is identified and available to chatbots for workflows such as rerouting calls, automating payments, personalizing deals, detecting widespread service issues/outages, resolving invoice queries, or answering FAQs. Integrated IVR and DTMF systems. Multiple systems for CRM, invoices, and service provisioning. VAT on websites. Beginning use of AI to analyze customer intent.

Proactive	Adopting AI and other emerging technologies to please customers with better service
AI adoption	Augmenting human agents with AI and automation across channels.
People	Human agents train voice-enabled vocal bots and text-based chatbots. Agents are segmented to align with call type (such as customer service or technical support) and digital channels, as well as accents and voice features (such as slow speech).
Processes	Intelligent automated workflows support the lowest cost channel. Process synchronization enables an omnichannel experience. Predictive analysis helps identify customer wants and anticipate churn. Intent analysis proactively solves customer questions on invoices or payments, service issues, product activation or trade-ins, accounts, plans, and promotions. Customer satisfaction and performance KPIs (customer churn, one-contact resolution, and call deflection rate) are continuously monitored.
Data/technology	Customer data on active plans and usage integrated across systems to help human agents make business decisions (for example, next-best action and next-best option). Advanced VAT with speech-to-text processing, natural language understanding for intent, and vocal bots that can read articles in a natural manner (text-to-speech).

Pioneering	Running AI-first contact centers, innovating continuously to exceed customer expectations and help generate revenue
AI adoption	Advanced augmentation of staff with generative AI capabilities.
People	New role of "prompt engineer" is introduced for staff to work with the LLMs that support generative AI. Employees act as guardrails, assessing AI model results and improving them with feedback. Agents remain as human contacts, leveraging AI-generated call summaries and knowledge bases on policies (such as roaming), plans/bundles, and technical documentation. Digital agents provide multilingual support automatically.
Processes	Processes across the customer journey (such as marketing products/services, account setup, plan/service updates, tech support, and follow-up engagement) are hyper-automated and continuously improved through generative AI and robotic process automation. For example: – Calls are summarized in real time. – New customer intents are continuously introduced into workflows. – FAQs are automatically updated to reflect latest queries and resolutions. – NPS is monitored based on virtually all calls, not just a select few. – Actions and commitments made during customer interactions are noted and tracked to completion (for example, if a follow-up call was promised, it is scheduled, or if a credit was promised but not applied during the call, a task is created to apply and confirm the credit). – Revenue is generated through hyper-personalized offers as part of the overall engagement, aligned with the context of the interaction. KPIs and customer satisfaction, including NPS, improve based on ongoing learnings and innovation that solves more requests with less effort.
Data/technology	Modernized, scalable data infrastructure that integrates data from disparate sources. Foundation and large language models trained on company-specific data. Cloud infrastructure providing the required compute power for generative AI. Enhanced conversational AI capabilities.

The foundations for a Pioneering contact center

An AI-first approach to customer care often requires a refreshed experience design. CSPs should step back and reimagine how they can simplify and improve the customer and agent experience and then consider how AI can support that vision.

To meet the increased requirements of generative AI, CSPs must also evaluate and possibly transform their IT infrastructure, processes and systems, information architecture, and security systems while also educating their people. Having traditional AI tools in place—and the supporting technical foundation—prepares organizations for the transition to generative AI (see Figure 3). TIM Brasil, for example, is using the latest neural text-to-speech technology in its contact center for more natural-sounding virtual agents, positioning the organization to adopt generative AI (see case study "TIM Brasil humanizes virtual agent" on page 16).

Key enablers for operationalizing generative AI

Preparing the workforce

Although the creative and conversational powers of generative AI may appear to threaten contact center jobs, the technology cannot be used successfully without the knowledge and experience provided by a human workforce. While four out of five (83%) global cross-industry executives agreed to some extent that generative AI will reinvent how their organization works, three-quarters (77%) saw that impact as augmenting or elevating the roles of employees—not replacing them.[12] AI-generated content becomes an asset in the talent's technology toolbelt, allowing representatives to add a human touch while leveraging a vast knowledge base to personalize one-on-one interactions with customers.

To ready their workforce for generative AI, almost 90% of cross-industry executives are considering formal training to reskill/upskill affected employees.[13] This could include preparing staff to be "prompt engineers," a new role that addresses the need to ask the generative AI tool the right questions to get the best answers. Skillfully writing an AI prompt is more art than science and can help to mitigate bias or misinformation. Prompt engineers can also help train and test AI systems, becoming a critical safeguard in the battle for information integrity.[14]

FIGURE 3

A generative AI-powered contact center requires redesigning the user experience alongside robust data governance and integration running on a hybrid cloud infrastructure.

Customer channels

Web | Mobile | Email |
Call center | WhatsApp |
In person in retail stores

i   *Customer/ organizational information*

Contact center

AI-powered virtual agents |
Upskilled human agents

Contact center
AI training

Customer knowledge

Speech-to text Text-to-speech Multiple languages	Chat/call transcripts and call recordings
Customer records	Customer connectivity and usage patterns

Telecom organizational knowledge

Marketing campaigns	Policies
Organizational processes	FAQs

Applications

Virtual agents	chatbots	voice bots	email automation	Agent decision support	Invoice video generation	Contact center analytics dashboard

Experience design

Risk, security, and ethics

AI and data governance	Security	AI ethics

TIM Brasil humanizes virtual agent[15]

With more than 70 million clients and 18 million calls per month, TIM Brasil sought a better way to interact with its customers and boost call center productivity. Using IBM Watson® technology on IBM Cloud®, it created "TAIS," an AI-powered virtual agent that streamlines the call center experience for customers while allowing human agents to focus on other critical areas. Within a year of implementation, call retention without involvement of a human agent increased 75%.

TAIS detects intent and tone, which it combines with customer history data to deliver a more personalized experience. Featuring natural language capabilities and, more recently, leveraging neural text-to-speech technology, TAIS abandons robotic speech patterns in favor of more natural dialogue, delivering a 30% improvement in customer satisfaction. The latest version of the solution allows customization for 400 voices in 140 languages, as well as speed, tone, and pronunciation adjustments. TIM Brasil reports the digital agent received more than 121 million calls since implementation. The company is exploring generative AI options to expand on its current contact center capabilities.

Streamlining and automating processes

For CSPs to experience the value of generative AI, manual, disjointed processes must give way to AI-powered, automated workflows that connect customer service data, network data, and processes across systems for use across channels.

Organizations across industries are well on their way, with 91% of executives anticipating their organizations' workflows will be digitized and will leverage automation by 2026.[16] Telecom executives recognize the worth of this digital transformation to customers; 85% said they expect digital initiatives to deliver the highest value to customer experiences.[17] However, establishing more intelligent workflows goes hand in hand with having a data architecture, IT infrastructure, and security designed to support AI.

Modernizing data management and technologies

Information architecture and governance. The value of generative AI to CSPs increases significantly when they can fine-tune a foundation model with organization-specific data. But that means they must have their own data house in order with a data architecture that integrates data from multiple systems, and robust data governance to help ensure the quality and integrity of the data.

Hardware/infrastructure. The foundation and large language models at the core of generative AI rely on datasets that must be trained, which pushes data storage and compute power higher on the priority list. Because the processing requirements of generative AI models exceed the capabilities of traditional hardware, organizations are turning to cloud platforms to meet the demands. However, even those companies with established cloud capabilities anticipate needing updates: 40% of US C-suite executives say their cloud architecture will require significant changes and rework to support generative AI.[18]

Security. In recent IBM Institute for Business Value research on anticipated impacts of generative AI, cybersecurity topped a list of concerns for US C-suite leaders. Nearly two-thirds anticipated additional cybersecurity vulnerabilities leading to widespread or catastrophic risk that will be difficult or impossible to manage.[19] For example, in data poisoning and model manipulation attacks, cybercriminals try to compromise a model during its data training phase so that when it's deployed, it behaves as the attacker wants rather than as the organization intends.[20]

Time-tested security principles remain critical to a CSP's defense against these more sophisticated threats to data and models. Security AI and automation tools can strengthen and accelerate their ability to detect, respond, and recover from attacks. In fact, organizations using security AI and automation extensively identified and contained a breach 108 days faster than those not using it.[21]

CSPs further along in their digital transformation are modeling what's possible. For instance, Bouygues Télécom is integrating generative AI into its customer relationship processes, starting with using large language models to generate summaries of more than 8 million conversations between customers and agents. Newfound insights within these summaries and topic extractions have significantly changed the business. The company estimates saving more than $5 million on operations and cutting pre- and post-call operations by 30%.[22]

Another innovative CSP is piloting generative AI to create personalized videos that explain invoices, which should prove helpful to consumers who have said they want an invoice that's easier to understand.[23] CSPs can also learn from other industries' use of generative AI for customer care. For example, a large global payments firm achieved 91% accuracy and near-real-time insights into customer complaints, allowing it to react rapidly to emerging issues.[24]

*Leveraging the knowledge
and experience of the telecom
workforce is essential to
strengthening the efficacy
and authenticity of AI models.*

Understanding AI risks and accepting responsibility

CSPs cannot begin the transition to generative AI without factoring in the risks and ethical considerations for customer care as well as other use cases throughout their business (see Perspective, "Other generative AI use cases for the industry" on page 21).

Generative AI amplifies existing AI risks while introducing new ones. Mitigating these risks is critical to avoid harm to a brand's reputation and the social implications of spreading misinformation.

Risk	What it means	Mitigation options
Explainability	Answers not identifying data sources	Mechanisms that trace and record the origin of all AI-generated outputs back to the foundation model, data set, prompt, and other inputs
Ethics	Generating outcomes inconsistent with social expectations	Organizational accountability, such as AI ethics boards
Accuracy	Asserting incorrect information as fact (such as "hallucinations")	Feedback loops so models can learn from and correct mistakes
Bias	Prejudicial or preferential propositions	Diverse team working on AI Auditing of models for bias before and after deployment
Data integrity	Untrustworthy source data	Robust data governance
Cybersecurity	Introducing new vulnerabilities	Zero trust cybersecurity framework AI-enabled security intelligence Educated workforce on security risks

Executives are well aware of the challenges: nearly 60% of US cross-industry leaders expect ethical risks and 55% expect bias issues stemming from the use of generative AI.[25] In a separate IBM Institute for Business Value survey of global executives, one-third said they will forgo the benefits of generative AI because of ethics concerns.[26]

To move ahead confidently with generative AI, companies must evaluate their specific risk tolerance and how precise their outputs from generative AI need to be. Then they can tackle the job of identifying their specific risks and how to mitigate them.

CSPs can also build on their commitment to responsible and ethical AI using established tools such as:

– *The AI Ethics Playbook and self-assessment questionnaire for telecoms.* Developed by the Global Systems for Mobile Communications Association (GSMA), this resource explains how AI systems should be designed, developed, and deployed in accordance with the principles of fairness, human agency and oversight, privacy and security, safety and robustness, transparency and explainability, accountability, and potential environmental impact.

– *Mobile Privacy Principles.* Also developed by GSMA, this document describes how privacy should be respected and protected when consumers use mobile applications and services that access, use, or collect personal information.[27]

GSMA cites examples where leading CSPs are putting these principles into practice. Telefónica has adopted a "responsible use of AI by design" methodology, Telstra has established a Risk Council for AI and Data, and Vodafone has adopted an "AI ethics by design" approach.[28]

Transitioning to AI-powered—and, eventually, generative AI-powered—customer care is a multifaceted, complex endeavor. CSPs will need a robust technology partner ecosystem combined with knowledge from industry organizations to position themselves for an AI-first future.

Nearly 60% of US cross-industry leaders expect ethical risks stemming from the use of generative AI.[25]

Other generative AI use cases for the industry

Transforming customer care is a prime starting point for the telecom industry to use generative AI, but network optimization also holds tremendous promise. Generative AI can turbocharge data analysis of network logs by learning and adapting to new patterns and data to pinpoint network congestion or signal interference. It can also boost predictive capabilities for equipment failure and maintenance to reduce network downtime.[29]

Other potential areas for generative AI investment include IT and information security. For instance, within IT, generative AI can produce technical documentation, create code for software development, develop test cases, and support compliance monitoring. Cybersecurity use cases include error log and root cause analysis, external threat analysis, incident response, and report generation. In marketing, generative AI can analyze large amounts of data to identify patterns in customer behavior as well as automate content creation and personalize offers. And generative AI can lend support to employees wherever summarization, knowledge searches, analysis and reporting, or contract development are needed.

Action guide

Readying the contact center for emerging technologies such as generative AI spans responsibilities organization-wide. Each area must understand both opportunities and risks to innovate effectively.

For telecom executives and people managers

Educate employees and leverage their expertise

– Create the prompt engineer role and reskill contact center employees to work with generative AI models.

– Evaluate and optimize the user experience of the customer service agent as you plan and pilot generative AI tools in the contact center.

– Articulate a set of guidelines for employees on how to use—and not use—generative AI solutions.

– Redefine jobs and skills based on higher-value-added tasks where AI is less useful, being mindful that human agents are critical to serving and retaining unhappy customers.

– Leverage business partners to supplement skills not needed at scale.

For operations managers

Update and streamline systems and processes

– Review current CRM and ERP systems for opportunities to consolidate and enable streamlined access to operational and customer data.

– Evaluate documented workflows to help ensure they reflect current operations and goals. Use process mining to analyze workflows and identify opportunities where AI can help. Then map changes that are required for advanced uses of AI.

– Review and update current AI ethics policies and procedures to address new risks posed by generative AI. If this documentation doesn't exist, leverage guidance from industry associations such as GSMA to establish them.

For data and technology managers

Optimize for AI

– Evaluate data governance, information architecture, and data security to help ensure high-quality, trusted enterprise data is available for use with foundation models.

– Identify infrastructure updates needed to support generative AI computation requirements.

– Integrate AI governance tools into the lifecycle management of both the data and AI models.

– Target technology partners that can support data and infrastructure needs for your generative AI goals.

For risk, ethics, and security managers

Partner to mitigate new risks

– Establish strong AI ethics and governance mechanisms to manage internal and external risks.

– Update security policies and controls to reflect both offensive and defensive use cases for generative AI.

– Develop new practices around monitoring query inputs and outputs for manipulation.

– Involve contact center teams in monitoring the results of generative AI tools to help ensure accuracy and absence of bias.

About Expert Insights

Expert Insights represent the opinions of thought leaders on newsworthy business and related technology topics. They are based on conversations with leading subject-matter experts from around the globe. For more information, contact the IBM Institute for Business Value at iibv@us.ibm.com.

The right partner for a changing world

At IBM, we collaborate with our clients, bringing together business insight, advanced research, and technology to give them a distinct advantage in today's rapidly changing environment.

IBM Institute for Business Value

For two decades, the IBM Institute for Business Value has served as the thought leadership think tank for IBM. What inspires us is producing research-backed, technology-informed strategic insights that help leaders make smarter business decisions.

From our unique position at the intersection of business, technology, and society, we survey, interview, and engage with thousands of executives, consumers, and experts each year, synthesizing their perspectives into credible, inspiring, and actionable insights.

To stay connected and informed, sign up to receive IBV's email newsletter at ibm.com/ibv. You can also find us on LinkedIn at https://ibm.co/ibv-linkedin.

About GSMA Intelligence

GSMA Intelligence is the definitive source of global mobile operator data, analysis, and forecasts, and publisher of authoritative industry reports and research. Our data covers every operator group, network, and mobile virtual network operator (MVNO) in every country worldwide—from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily. GSMA Intelligence is relied on by leading operators, vendors, regulators, financial institutions, and third-party industry players to support strategic decision-making and long-term investment planning. The data is used as an industry reference point and is frequently cited by the media and by the industry itself. Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

Related reports

Connected cars

Connected cars: Getting ahead of the fast and furious flood of data. IBM Institute for Business Value. July 2023. https://ibm.co/connected-cars-telecoms

Telecoms move beyond connectivity

Telecoms move beyond connectivity: Unlocking cross-industry value through IoT payment and data exchange platforms. IBM Institute for Business Value. February 2023. https://ibm.co/telecom-iot-payments

Acknowledgements

Notes and sources

1   Canepa, Steve, Utpal Mangla, Ross Judd, and Satishkumar Sadagopan. *Scaling conversational AI: How telecom companies are boosting efficiency with Virtual Agent Technology.* IBM Institute for Business Value. April 2021. https://ibm.co/conversational-ai

2   GSMA Intelligence data; Tessitore, Sabrina. "What's the Average Churn Rate by Industry?" *CustomerGauge.* May 16, 2023. https://customergauge.com/blog/average-churn-rate-by-industry

3   Canepa, Steve, Utpal Mangla, Ross Judd, and Satishkumar Sadagopan. *Scaling conversational AI: How telecom companies are boosting efficiency with Virtual Agent Technology.* IBM Institute for Business Value. April 2021. https://ibm.co/conversational-ai

4   Giovis, Rosane and Eniko Rozsa. "Transforming customer service: How generative AI is changing the game." *IBM Blog.* July 17, 2023. https://www.ibm.com/blog/transforming-customer-service-how-generative-ai-is-changing-the-game/

5   Based on IBM internal client information.

6   Giovis, Rosane and Eniko Rozsa. "Transforming customer service: How generative AI is changing the game." *IBM Blog.* July 17, 2023. https://www.ibm.com/blog/transforming-customer-service-how-generative-ai-is-changing-the-game/

7   Canepa, Steve, Utpal Mangla, Ross Judd, and Satishkumar Sadagopan. *Scaling conversational AI: How telecom companies are boosting efficiency with Virtual Agent Technology.* IBM Institute for Business Value. April 2021. https://ibm.co/conversational-ai; "What is artificial intelligence?" *IBM website.* Accessed July 21, 2023. https://www.ibm.com/topics/artificial-intelligence?lnk=fle; "What are foundation models?" *IBM Research Blog.* May 9, 2022. https://research.ibm.com/blog/what-are-foundation-models

8   IBM Institute for Business Value Telecom Sales Benchmark Survey. 2023. Unpublished data.

9 Giovis, Rosane and Eniko Rozsa. "Transforming customer service: How generative AI is changing the game." *IBM Blog*. July 17, 2023. https://www.ibm.com/blog/transforming-customer-service-how-generative-ai-is-changing-the-game/

10 *Global C-suite Series: CEO decision-making in the age of AI*. IBM Institute for Business Value 2023 CEO report. Unpublished data; IBM Institute for Business Value impact of generative AI on labor pulse survey of 300 global executives, 2023. Unpublished data.

11 *Global C-suite Series: CEO decision-making in the age of AI.* IBM Institute for Business Value 2023 CEO report. June 2023. https://ibm.co/c-suite-study-ceo

12 IBM Institute for Business Value impact of generative AI on labor pulse survey of 300 global executives, 2023. Unpublished data.

13 Ibid.

14 Griffith, Eric. "Weird New Job Alert: What Is an AI Prompt Engineer?" *PC magazine*. May 22, 2023. https://www.pcmag.com/how-to/what-is-an-ai-prompt-engineer

15 Based on IBM internal client information; Curry, Sean. "How AI and chatbots helped telecoms strengthen their connections during COVID-19." *IBM Blog*. July 15, 2021. https://www.ibm.com/blog/ai-chatbots-tele-com-customer-service-post-pandemic-covid/; "TIM, IBM 'humanize' the voice of a virtual assistance with Artificial Intelligence." Bnamericas press release. March 13, 2023. https://www.bnamericas.com/en/news/tim-ibm-humanize-the-voice-of-a-virtual-assistant-with-artificial-intelligence

16 IBM Institute for Business Value 2023 automation survey of 2,000 executives. Unpublished data.

17 Butner, Karen, Tom Ivory, Marco Albertoni, and Katie Sotheran. *Automation and the future of work: Creating intelligent workflows across the enterprise.* IBM Institute for Business Value. 2019. Unpublished data.

18 IBM Institute for Business Value impact of generative AI on hybrid cloud pulse survey of 414 US executives, 2023. Unpublished data.

19 Ibid.

20 *Securing Artificial Intelligence: Data Supply Chain Security.* ETSI GR SAI 002 V1.1.1. August 2021. https://www.etsi.org/deliver/etsi_gr/SAI/001_099/002/01.01.01_60/gr_SAI002v010101p.pdf

21 *Cost of a Data Breach Report 2023.* IBM Security and the Ponemon Institute. July 2023. https://www.ibm.com/reports/data-breach

22 Giovis, Rosane and Eniko Rozsa. "Transforming customer service: How generative AI is changing the game." *IBM Blog*. July 17, 2023. https://www.ibm.com/blog/transforming-customer-service-how-generative-ai-is-changing-the-game/

23 Based on IBM internal client information; IBM Institute for Business Value survey of more than 13,000 global telecommunications consumers. 2023. Unpublished data.

24 Based on IBM internal client information.

25 IBM Institute for Business Value impact of generative AI on hybrid cloud pulse survey of 414 US executives, 2023. Unpublished data.

26 IBM Institute for Business Value impact of generative AI on labor pulse survey of 300 global executives, 2023. Unpublished data.

27 *The Mobile Industry and AI: How mobile connectivity and artificial intelligence can work together to make the world a better place: a guide for policymakers and regulators.* GSMA. 2023. https://www.gsma.com/betterfuture/wp-content/uploads/2023/02/The-Mobile-Industry-and-AI.pdf

28 Ibid.

29 Kaur, Jagreet. "Generative AI in Telecom Industry: The Ultimate Guide." *Xenonstack*. July 2023. https://www.xenonstack.com/blog/generative-ai-telecom-industry