

EMERGING INTELLIGENT AUTOMATION PARADIGMS FOR SERVICE DESK IN THE TELECOM INDUSTRY

WHITEPAPER



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Executive Summary

During the recent COVID-19 pandemic, the telecom industry has come to the rescue of businesses as well as individuals to meet their requirements for stable, secure, and reliable internet connectivity. The demand for high-speed internet services has suddenly gone up to support increasing requirements of video conferencing calls and other collaborating tools in the light of working and learning from home mandates.

Telecom companies have quickly realized the importance of accelerating their digital transformation journeys to meet these evolving requirements. Recent industry research emphasizes the importance of network connectivity and services offered by the telecom sector. Various COVID-19 related restrictions set by governments, such as stay-at-home and quarantine measures, have caused a massive increase in data traffic and increased use of broadband services due to the increased reliance of people on connected devices.

Intelligent automation technologies have leapfrogged in importance for facilitating digital transformation as the industry is emerging from the pandemic. Digital technologies such as robotic process automation (RPA) and artificial intelligence (AI) are transforming customer experience with telecom companies rapidly promoting the self-service model for customer support and servicing. While there is increased use of bots with cognitive capabilities for negotiating/discounting/VAS offers, on the one hand, intelligent automation is increasingly enabling cognitive analysis of customer history, needs, and desires to enable proactiveness through an outside-in perspective approach, on the other.

Figure 1 depicts the intelligent automation building blocks from transactional, project level ad-hoc automation for areas like scripts to a more intelligent, judgement driven one with integrated analytics and artificial intelligence with self-learning and self-evolving tools.

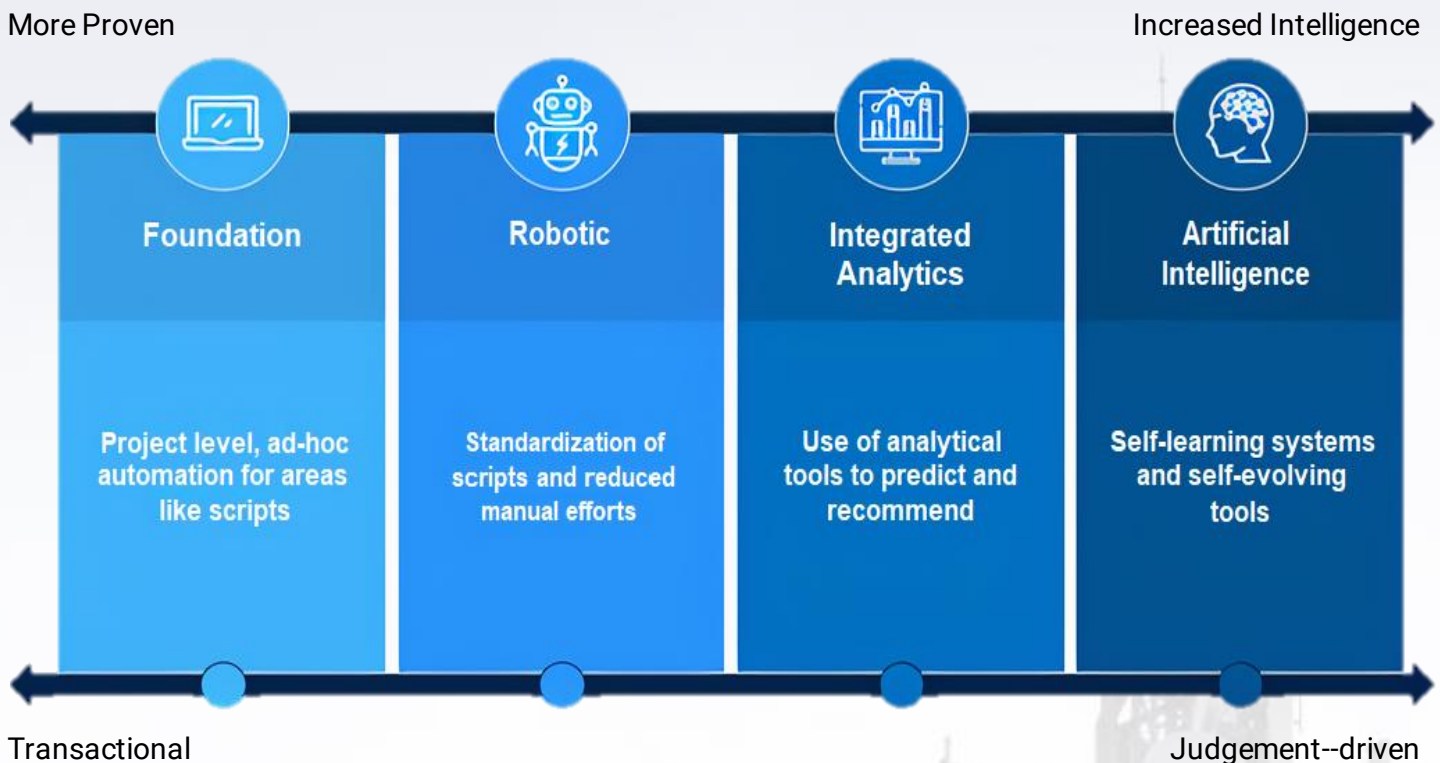


Figure 1: Building Blocks for Intelligent Automation

Improved Customer Experience as a Driver for Minimizing Business Disruption

Research indicates that in recent years, customer experience has emerged as a top strategic priority for a majority of senior telecom executives. Customer experience and customer support have been identified by top telecom executives as the top two most critical use cases driving analytics and AI adoption.

Studies show that companies that revamped customer experience outclassed the rest during the pandemic. Due to the pandemic, companies were suddenly forced to change their approach to customer experience. They responded to changing customer needs with improved service offerings through digital transformation, new shopping options, and increased emphasis on safety across channels of customer interaction.

The Changing Customer Experience Imperatives for Telcos in the New Normal

After the huge business disruption caused by the pandemic, it has become increasingly important for the telecom industry to move quickly to provide a better customer experience, while at the same time ensuring the success of their customers in the new work from home (WFH) environments. Contact centers, which play a major role in customer experience and offer a very high return on investment (ROI), have caught the attention of senior telecom executives for intelligent automation.

Telecom companies are increasingly looking at adopting intelligent automation technologies for digitally reimaging their contact centers for enhancing customer experience. Adoption of technologies such as RPA and AI is increasingly enabling contact centers to lower their call waiting times, reducing their average handling time (AHT) and eventually increasing their customer satisfaction. In contact centers, telecom firms are looking at automation of customer self-service, after call work (ACW), and post-interaction analytics as the three key drivers for enhancing customer value and for achieving competitive advantage.




 Use Case	 KPIs To Improve	 Intelligent Automation Solution
IVR automation for callback	Average abandonment rate Average idle time Percentage of calls blocked	Voice bots Chatbots
Automation of query handling	First time resolution rate Average time to answer CSAT	Virtual bot assistant Conversational AI Agent workflow bots
Automation of issue classification and routing of incoming requests	Call transfer rate Average after call work time	Agent workflow bots Intelligent routing using machine learning models
Automation of appointment scheduling and trouble-shooting of repetitive issues	Rate of absent agents Rate of agent turnover	AI based workflow management

Figure 2: Some use cases, KPIs, and their intelligent automation solutions

Increasing Adoption of Self-Service Options with Enhanced AI and NLP deployment

Self-service channels are increasingly adopting intelligent virtual agents (IVAs) in order to drive a better experience for customers. IVAs use AI and natural language processing (NLP) technologies for helping customers resolve mundane service issues on their own with the help of chatbots and voicebots. In the telecom industry, some examples of customer issues that IVAs are helping to solve through self-service options are: getting an additional connection, billing issues, checking order status, or troubleshooting service issues, such as network problems.

Recent research in the aftermath of the COVID-19 pandemic points towards the pressing need for companies to invest heavily in AI to quickly create a human-machine workforce in contact centers. General industry trends indicate that over the last year, due to the pandemic, there has been an incredible increase in the development of conversational AI as an enabler for strengthening digitally-native platforms of communication for improving customer experience. The pandemic has changed the way businesses, suppliers, and end-consumers perceive technology. A significant proportion of consumers now give much more importance to customer experience while making a decision about the businesses they patronize and spend their money on. Globally, for NextGen and millennial consumers, companies are increasingly identifying direct messaging and online chat as the preferred means of contact.

According to the report *Conversational AI Market Size, Share and Global Market Forecast to 2025*, while 2020 has been a watershed year for conversational AI, the market is projected to grow to \$13.9 billion by 2025 from \$4.8 billion in 2020. The biggest driver of this growth is expected to be the increasing integration of advanced AI capabilities with existing systems for augmenting customer engagement through various social media and engagement platforms. This is a clear indication of the customers' increasing familiarity with self-service options and of their increasing propensity to use these channels for everyday interactions with their service providers in various industries such as banking, insurance, and telecom.

Using AI and NLP technologies, telecom companies are increasingly providing customers with instant and on-demand services through intelligent virtual agents. The automated self-service options powered by conversational AI are speeding up query resolution time. While this is having a direct and immediate positive impact on customer satisfaction and loyalty, it is also improving agent productivity by offloading repetitive tasks from agents and lowering call volume.

The Case for Intelligent Service Desk Operations with RPA and AI

In the earlier days, the domain of customer support was fragmented and manual. Thus, it was difficult for customers as well as employees to navigate the systems and processes of the service provider in order to get resolution to their queries, issues, or complaints. In recent times, the advent of intelligent automation in service desk operations has brought in much better and faster issue resolution, as well as much more personalized services.



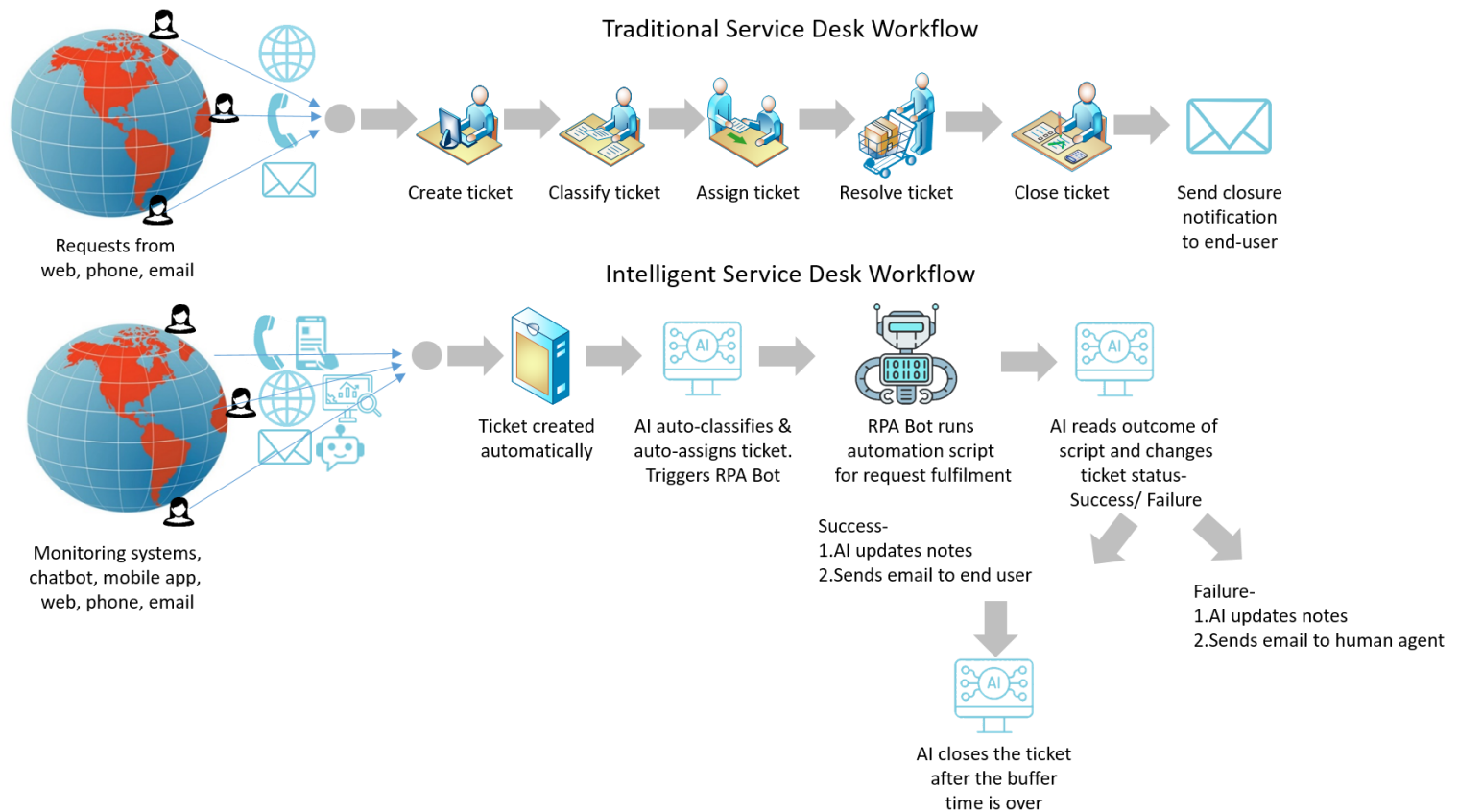


Figure 3: Traditional vs Intelligent Service Desk Workflows

Service desk operations are now witnessing significant digital transformation through the deployment of intelligent technologies such as RPA and AI. These technologies are helping augment the traditional service desk capabilities through the automation of mundane and repetitive operational activities so that human operators can focus on more value adding work. RPA and AI techniques such as NLP and machine learning (ML) are increasingly being used to make sense of user requests, draw insights, learn business rules and automatically take necessary actions without human intervention.

Trends indicate a noticeable shift towards conversational AI, which has pushed intelligent automation paradigms to even higher levels by providing a platform where users can converse with AI-powered chatbots and virtual voice assistants that use NLP technology. Conversational AI is now taking over from human beings the role of responding to user queries and is now resolving their issues in a seamless manner. According to the report *Conversational AI Market Size, Share and Global Market Forecast to 2025*, the global conversational AI market is expected to grow at a CAGR of 21.9% between 2020 and 2025 from USD 4.8 billion in 2020 to USD 13.9 billion by 2025. These chatbots and virtual voice assistants are now helping service providers get business intelligence insights about customer purchase behaviors, preferences, as well as trends in service issues faced by them. These insights and enhanced capabilities are of great assistance to these companies for providing proactive issue resolution and more personalized customer experiences to the users.

The Role of RPA and AI in transforming ITSM

While IT Service Management (ITSM) shoulders a substantial burden of handling technology and fixing issues, it is often under-resourced when it comes to deploying intelligent automation solutions of its own. Unfortunately, many ITSM processes are laced with predictable service delivery models, which often leads to delays in resolutions of unanticipated issues. What ITSM needs is an approach for leveraging their existing talent pool and systems to address this unpredictability. Adopting such an approach is of utmost importance to them so that the capabilities of their existing IT teams can be augmented and so that they can stay relevant and competitive in the current business environment.

In many telecom organizations, RPA and AI are transforming various ITSM activities such as self-service, incident management, service request management, knowledge management, IT asset management, and reporting. Typically, after implementation of intelligent automation in an incident management process, AI tools and techniques are deployed for classification and assignment of tickets and to trigger the RPA bot. The RPA bot subsequently, runs business rules based on the ticket category and performs the actions that it is programmed to do including closing the ticket and/or sending out an email to a specified mailing list.

Some examples of use cases under ITSM/SR management are bulk closure of service requests, password reset, account unlock, account creation, etc. Some other examples of use cases under the incident management category are incident monitoring, ticket creation, incident classification, incident prioritization, incident assignment, and incident closure.

GAiA AIOps platform

A Tech Mahindra integrated AI Ops platform, using NLP and ML for simplifying and automating routine IT Operation tasks and to detect and prevent potential issues. It provides modular components with an extensible framework to allow integration with external tools.

- **Virtual Assistant:** deflects incident and service requests by enabling Self Service
- **Smart Insights Service Desk:** automatic Classification/ Categorization, Intelligent Recommendations & SOP automations
- **Smart Insights Incident Analytics:** helps reduce MTTD and MTTR through metrics correlation, trend analysis and pattern matching
- **Smart Insights Predictive Analytics:** helps proactively identify risks and process hotspots before they impact service levels
- **ChatOps for IT Operations:** enables knowledge sharing and collaboration between teams, common platform for people, processes and systems
- **Automation BOTs for Infrastructure & Application:** accelerates automation using pre-built BOT repository covering 300+ bots

Case study #1: AI Driven Intelligent Operations for a Tier-1, Germany Headquartered Telco Provider

Business Problem

- High Volume of Incidents/ SR's were creating problems of Data Quality, Process & Higher Handling Time which was leading to bad Customer Experience
- Customer was looking for a NLP based contextual AI framework, which can learn from the large historical CRM operations data and handle incident & problems tickets

Our Solution

- Harmonized AI-Ops based framework to classify problems and provide recommendations
- Solution learns from past Issues & Responses and with the use of NLP and Machine Learning, it provides state of the art results. Overall framework based on latest TM-Forum principals

Value Delivered

- ~10-15% Reduction of incidents/problems
- Improved First Call Resolution and End User Experience
- Reduction in manual efforts of Service Desk

Case study #2: Intelligent AI-Ops framework for Tier-1 telecom operator in Germany

<p>AI-Ops based framework uses latest Machine Learning classification and NLP technologies. It provides ML based decision support system and creates base for cognitive operations</p>	<p>The customer is a leading Telecom provider of Germany</p>	<p>Solution</p> <p>A Machine Learning based digital AI framework with TM-Forum architecture. It also uses NLP and provides classification & recommendation engine which does the matching based on new set of features and the existing historical data</p> <p>The new data features provide</p> <ul style="list-style-type: none"> • Most near similar solution of problem with provided input text • Top 5-10 most relevant recommendations from historical data • Centralized Knowledge Management module • Success accuracy for similar problems with Self Assisted options • Non- intrusive solution 	<p>Value Delivered</p> <p>Improved quality of operations (SR) and reduced MTTR & AHT effort to find the right solution</p>
	<p>Challenges</p> <ul style="list-style-type: none"> • Data quality & process issues • Higher handling time for issues • Manual SME dependent process • Poor customer experience • Lack of any centralized digital framework for automation • Multiple human touch points 		<p>AI recommendation engine which will keep learning over a period of time and deliver exponential benefits</p>

Taking Service Desk Automation to the NXT Level

Before the advent of the Internet era, customers had limited interactions with a company. But in recent years, with emerging technologies the number of customer touch points has increased dramatically. While companies now have an enhanced ability to connect with their customers, this has also increased customer expectations by creating a fundamental shift in the process of delivering the customer experiences itself.

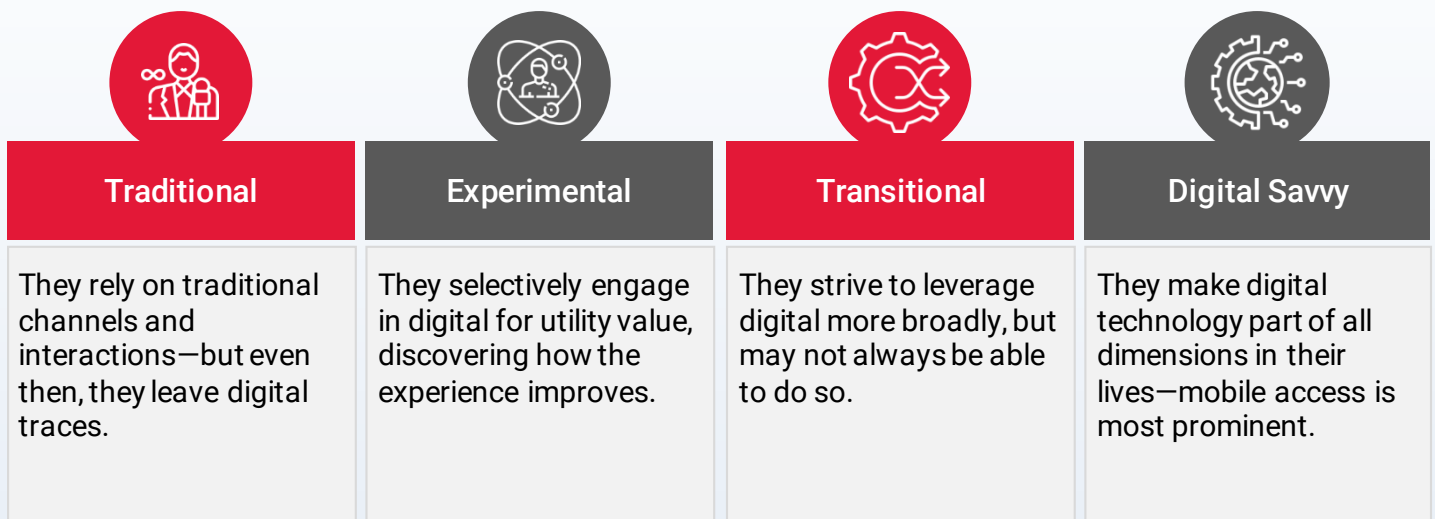
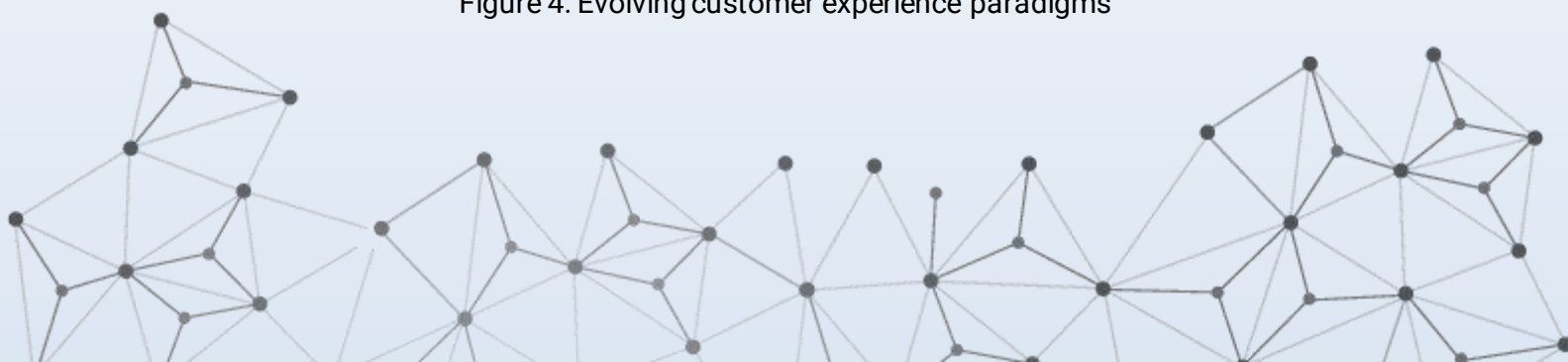


Figure 4: Evolving customer experience paradigms



The COVID-19 pandemic was a black swan event that suddenly increased the customers' demand for stable, secure, and reliable internet connectivity to support their enhanced requirements of video conferencing calls and other collaborating tools due to lockdowns and work from home mandates. This has brought a pervasive change in the working models of Telcos and has made them realize the importance of accelerating their digital transformation journeys in order to meet their requirements.

Telcos in the new normal are increasingly relying on intelligent automation technologies to facilitate their digital transformation initiatives with technologies, such as RPA and AI, leading from the front as enablers of digitization efforts for improving customer experience. The adoption of these technologies are helping companies reduce their operational costs and increase efficiencies while also easing human effort on one hand, and improving customer satisfaction through standardized customer service on the other.

Telcos are rapidly promoting the self-service model for customer support and service with increased deployment of bots with cognitive capabilities. Intelligent automation is increasingly being used for bringing in proactiveness through an outside-in perspective by facilitating detailed cognitive analysis of customer history, needs, and desires.

ML systems are now being used to constantly monitor live data and to predict system breakdowns, saving both end users and IT teams from a lot of trouble. AI tools are now helping service desks flag anomalies and generate critical warnings by connecting the dots across areas, which is almost impossible to do manually.

AI is increasingly driving intelligent analytics such as in-depth root cause analysis and predictive analytics. More and more companies are now leveraging these technologies to give a more personalized customer experience to users and to quickly create a competitive advantage for themselves in a competitive market with ever increasing customer expectations. The need of the hour for telecom service providers is to deploy intelligent automation in their service desk in order to create service as a differentiator (and hence competitive advantage) in the current period of uncertainty and slower growth.

Endnote:

Conversational AI Market Size, Share and Global Market Forecast to 2026 | MarketsandMarkets. (n.d.). [Www.marketsandmarkets.com](http://www.marketsandmarkets.com/Market-Reports/conversational-ai-market-49043506.html). Retrieved November 8, 2021, from <http://www.marketsandmarkets.com/Market-Reports/conversational-ai-market-49043506.html>





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He is a Consultant with Business Excellence, the Consulting and Management Services Division of TechM. He is an RPA certified Six Sigma Green Belt and brings expertise in driving large scale transformation projects across multiple industries such as Finance, Banking, Telecom & Consulting. Having worked across industries on various themes such as Service Assurance, Service Fulfillment, Customer Experience Management, etc, Manvinder brings an outside-in perspective to leverage the impact of digital technologies in solving pressing business problems. Manvinder has worked closely with multiple clients to enable their tactical as well as strategic large scale digital transformation agenda.

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