Google Cloud

Using AI to win the customer experience battle in telecommunications

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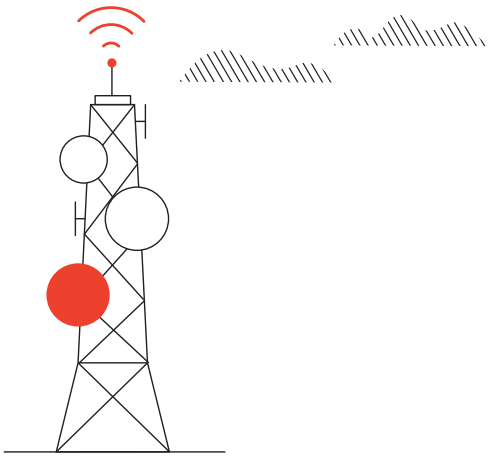
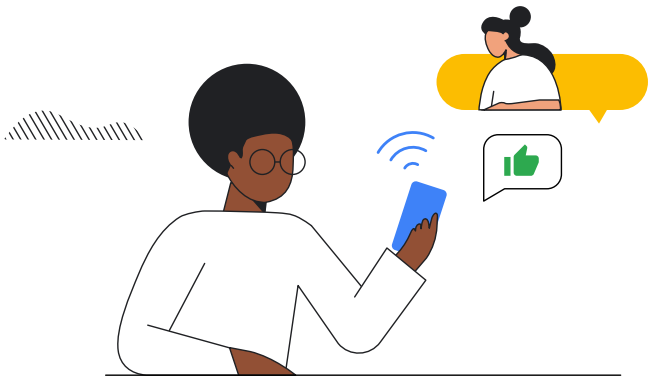


Executive summary

Customer experience (CX) leaders, including Communications Service Providers (CSPs), outperform the S&P 500 by as much as 54%.[1] In the last few years, artificial intelligence (AI) and machine learning (ML) have proven themselves as powerful, cost-effective tools to deliver personalized experiences across the customer lifecycle. By some estimates, the value of AI and ML across CX could reach nearly $160B, or almost 6% of global CSP revenue.[2]

In this paper we apply lessons learned from Google's experiences with AI to transform Customer Experience and deliver value to CSPs.



1. 2007-2019 total return to shareholder, Watermark Consulting, 2021 Customer Experience ROI Study, October 18, 2021.
2. McKinsey Global Institute, Visualizing the uses and potential impact of AI and other analytics, April 7, 2018.

Introduction

In parallel with the exponential advance of telecommunications technologies from 1G to 5G, competition in the CSP market has evolved too. It's gone from coverage and reliability ('Can I get it?'), to network performance ('How fast can I get it?') and, as the market matures, cost ('How cheap can I get it?).

At each stage, competition has driven CSPs to surpass 'good enough' threshold levels. Incremental improvements are not enough. To win in a never-ending price war, CSPs need to think differently.

CX represents the next competitive battleground

According to research by Watermark Consulting, CX leaders outperform the S&P 500 by 54% (and CX laggards by 240%).[3] Despite years spent marketing network coverage, speed, and pricing, no leading CSP has managed to break through to 'beloved' status based on the common metric of Net Promoter Score (NPS). It means there's plenty of room for determined CSPs to carve out a leadership position based on CX.

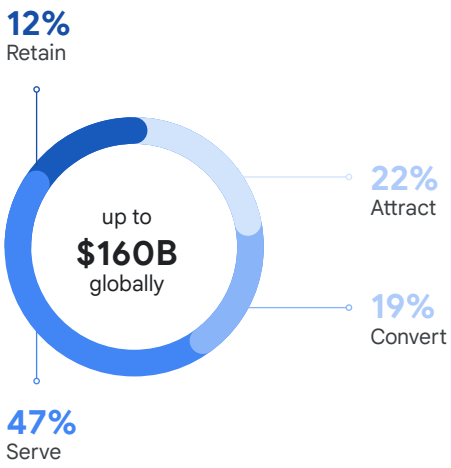
Customers are telling us what they want. For example, 76% of consumers value a personalized experience[4] and 69% of customers want to resolve as many issues as possible on their own.[4] Historically, it has been hard to deliver on these wishes. Today, thanks to AI and ML, cost-effective personalization, efficient self-service customer interactions, and transformative CX are well within reach.

AI and ML are not science fiction

McKinsey estimates that AI stands to create between US$80B and US$174B of value for global CSPs, equivalent to 6% of revenue.[5] The importance of CX in this value creation is huge—roughly 90% of the total value, or up to US$160B, will be driven by CX-related improvements.[5]

Estimated value of AI by stage of the CX chain

Value of AI across CSPs' customer experience chain



Source: McKinsey Global Institute: Google Cloud analysis

3. 2007-2019 total return to shareholder, Watermark Consulting, 2021 Customer Experience ROI Study, October 18, 2021.
4. Zendesk, Customer Experience Trends Report 2020, January 14, 2020.
5. McKinsey Global Institute, Visualizing the uses and potential impact of AI and other analytics, April 7, 2018.

The CX chain: Attract, convert, serve, and retain

The explosion in the number of smartphones and connected devices, and the volume of customer information over the last 15 years has left operators awash with data, but thirsting for insights and impact. By adopting AI and ML, operators get the tools they need to attract, convert, serve, and retain customers more efficiently.

Selected AI/ML use cases at CSPs by CX stage

- Audience targeting
- Message optimization
- Measurement

- Recommendations
- Data monetization
- Channel insights and optimization

- Contact center automation
- Sentiment analysis
- Anomaly and threat detection
- Digital twin fault prediction
- Field workforce assist

- Churn prediction
- Closed-loop orchestration of service quality
- Edge intelligence
- Security threat and fraud detection

Source: Google Cloud

Attract more customers with less effort

Maximizing Return on Advertising Spend (ROAS) and minimizing Cost per Gross Addition (CPGA) by optimizing ad campaigns is a tried-and-true use case for AI/ML. In attracting customers, AI/ML is typically used in three powerful ways:

Targeting

AI/ML models can be used to build, test, and attribute value to audience segments. It can also be used to extend the reach of deterministic data via 'lookalike' audiences.

Messaging

Operators can launch multiple creative messages across their target audiences, use AI/ML to evaluate effectiveness in near-real-time, and then optimize which messages to serve to which segments to maximize outcomes.

Measurement

AI/ML can be used to measure the value of media spend across channels and properties, ultimately driving marketing mix and multi-touch attribution models to both measure return and optimize spend.

Until recently, browser cookies and mobile device IDs have been the dominant currency for audience segments. Yet programmatic bidding (and measurement) and public policy trends may make these strategies difficult in the future. While there are many ideas about how to market in this changing environment, one choice appears to be to maximize the capture of and value from an operator's first-party data. The **Customer Data Platform (CDP)** is a key ingredient in this approach, reducing reliance on third-party data and enabling targeted messaging in a privacy-respecting way.

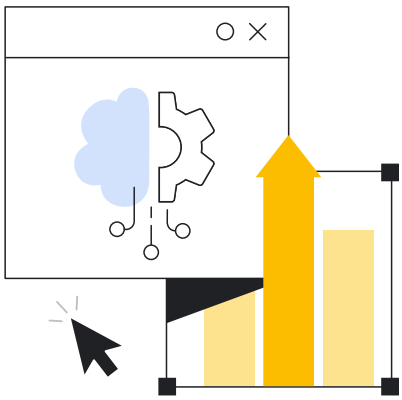
Convert customers, online and in-store

As anyone who's purchased from 'other products you might like' recommendations will attest, AI/ML is highly valuable during the sales conversion stage. With AI/ML, operators have an opportunity to tap into the rich customer signals embedded in internal systems—such as usage and billing data, account history, and Customer Relationship Management (CRM) interactions. Armed with a fuller 360° contextual view of each customer, AI/ML can help CSPs increase conversion success rates, basket sizes, and service attach rates.

Online sales

In an operator's online store, AI/ML can digest demographic, technographic, and sociographic data—as well as service and content consumption patterns—to surface devices, plans, or add-ons that have the potential to positively impact both recurring and non-recurring revenue.

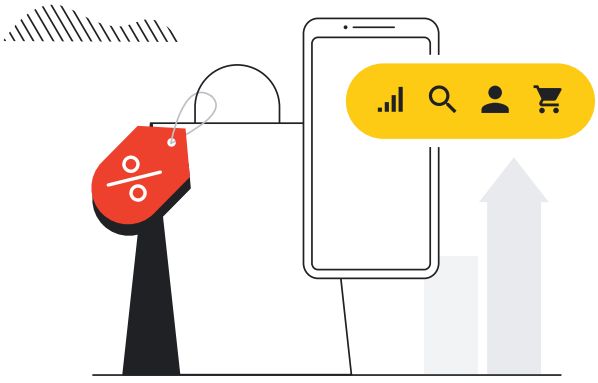
While AI/ML models can tap into enormous data sets in the CDP, they still need a lot of computational power to process data and return results quickly. We expect the effectiveness of these engines to improve as more data sources are consumed and models are enhanced.



Company-owned retail

AI/ML can also improve sales conversion rates in brick-and-mortar stores. Here are four proven use cases for retail environments.

- **Recommendations**
  At a basic level, the same recommendation / upsell / cross-sell AI engine driving the online store could be used in real life, making it easier for a frontline employee to recommend devices and add-on services that best meet a customer's needs.
- **Personalization**
  Within stores, frontline workers can use AI/ML to recognize and personally greet customers. And, with instant access to their account profile, purchase and subscription history, and predictions about the reason for their visit, they can engage more meaningfully. Recognizing customers and tailoring a greeting can make all the difference—such as turning a generic 'How may I help you today?' into a specific 'Hello Mrs. Smith, how may I help you? Are you thinking about upgrading your son's phone today?'
- **Acquisition**
  If an unrecognized person walks into the store, AI/ML could signal that they are a non-subscriber who's in the market for a new carrier. Operators could improve targeting via trained customer acquisition specialists, or equipping all frontline staff with 'battlecards' that spell out sales strategies to use against specific competitors or pain points.
- **Store operations**
  For the data-driven CSP, tools like Vision AI can help monitor and manage aspects of store operations, for example, queue monitoring, floor traffic 'heat maps', and retail shelf inventory tracking.



Serve every customer better

No leading CSP has earned an NPS of 50+ in the last five years.[6] There is a huge opportunity to improve CX using AI/ML.

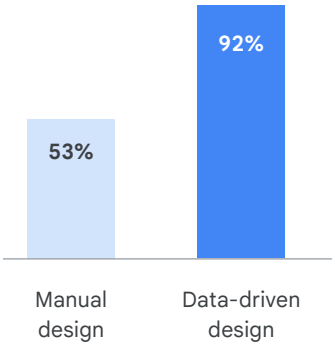
One of the most promising applications in this space is conversational AI in customer support. Google is working with leading operators across the globe to achieve the previously unattainable goal of 'better, faster, cheaper' by increasing customer satisfaction, accelerating problem resolution, and reducing labor costs.

Agentless support

Advances in speech recognition, natural language understanding, and conversational AI are transforming call centers. Fewer customers will face an inflexible Interactive Voice Response (IVR) system that takes up several minutes of time collecting information, only to be transferred to an agent and having to repeat themselves.

Google's Contact Center AI (CCAI) recognizes customer intent with over 90% accuracy, while the ability to automatically handle a query without needing a human agent has increased by up to 50% of call volume, compared to operators' legacy systems.[7] Chat deflection has increased 25-45%, further freeing up agents' capacity to focus on the most critical conversations.[8]

Improved customer intent recognition



In **3 weeks**, Google's AI-driven design improved customer intent recognition by **nearly 75%** over an operator's manually designed model optimized for years.

Custom Natural Language Understanding (NLU) also improved **head intent detection by 11%** over the incumbent solution.

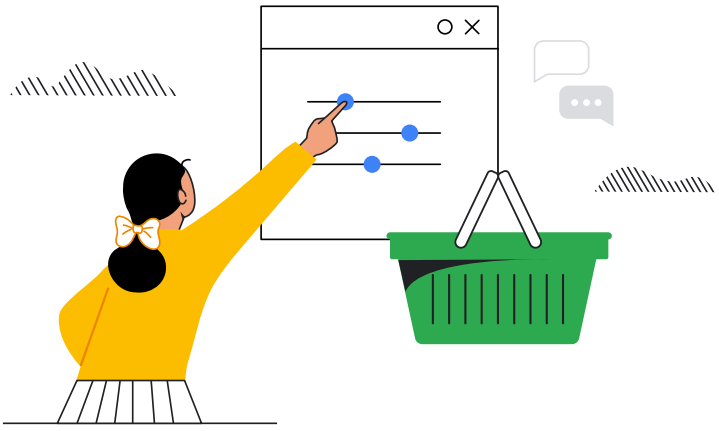
6. Bain & Company, How Telcos Can Reset Their Customer Strategy, May 18, 2020.
7. Google Cloud, M&S: Calling on Google Cloud for personalized customer service that's both digital and human.
8. Forrester, The Projected Total Economic Impact™ Of Google Cloud Contact Center AI, August 2020.

The human touch

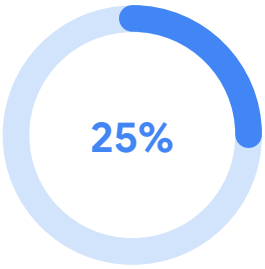
For those contacts requiring a human touch, AI/ML can help agents increase their 'first time fix' rates—decreasing Average Handle Time (AHT) by over 20% and increasing customer satisfaction.[9] For example, AI could serve up the customer's recent history, including any issues discussed or solutions attempted, and information about their devices.

Based on real-time dialog between the customer and agent, AI can help reduce the cognitive load on agents by identifying processes to follow, products and services that might help, or knowledge base articles for troubleshooting.

At the conclusion of the call, AI can generate a full transcript and discussion summary to reduce the agent's post-contact workload.



Empower agents in moments of need[10]



Agents today are overwhelmed. **Only 25% of contact center employees feel extremely satisfied** in their day-to-day.

With **Agent Assist**, agents have continuous support. Using real-time, step-by-step guidance, agents can **reduce average call handle times while personalizing customer interactions** across multiple channels.

9. IDC, Unlocking the Transformative Power of AI for Contact Centers, October 2020.
10. McKinsey & Co., Boosting contact-center performance through employee engagement, 2018.

Internal operations

Customer support extends beyond the call center. To deliver a great CX today, you need to empower employees across the organization. The same AI technology that improves outcomes and costs for customer support can be applied to internal operations. For example:

- **Field installation and maintenance technicians**
  These teams often call upon internal support centers to activate accounts or devices, test lines, and troubleshoot problems. Predictive analytics could help identify the most likely fixes for support tickets, so you can send technicians out with the right parts the first time.
- **Retail stores**
  Retail stores have become a one stop shop for some customer segments, handling the same customer support questions as contact centers. Improving average handle time and 'first time fix' rates apply to these support interactions too. Thinking more creatively, integration with CRM and/or CDP may help operators identify store patrons who may have had a series of technical support or billing issues, to recap what has happened and suggest next steps.
- **Outbound support**
  As demonstrated by services like Google Assistant and conversational AI (e.g., call hold bots), AI/ML can also apply in outbound contexts. For example, a virtual agent calls or texts customers to confirm service appointments, quickly rescheduling if needed. While chat-based bots attempt to do this today, opening up the voice channel broadens accessibility and value.

“

Verizon’s commitment to innovation extends to all aspects to the customer experience. These customer service enhancements, powered by the Verizon collaboration with Google Cloud, offer a faster and more personalized digital experience for our customers while empowering our customer support agents to provide a higher level of service.”

Shankar Arumugavelu, Global CIO and SVP, Verizon

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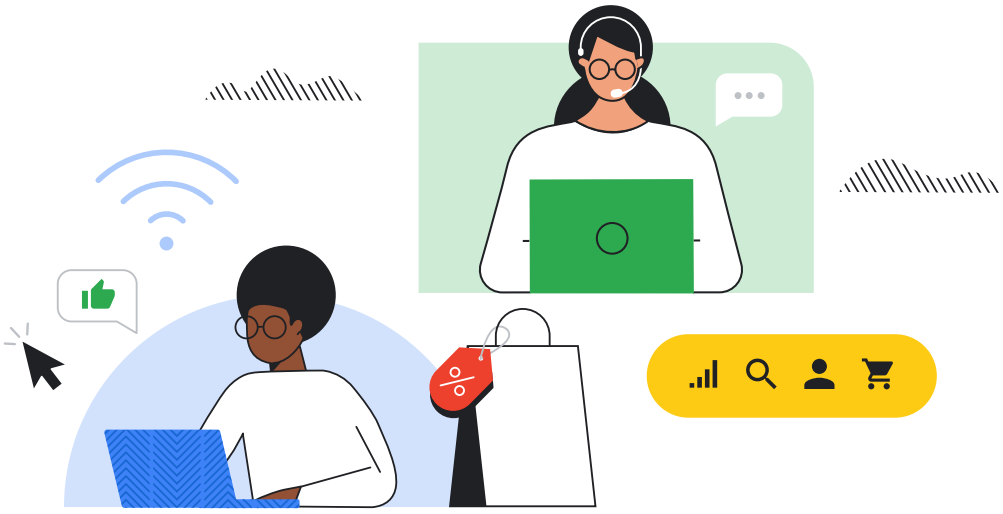


Retain customers with a better experience

For decades, operators have invested immense time and resources on customer retention. As data signals increase exponentially, AI is fast becoming a necessity in dynamically identifying and responding to potential churn.

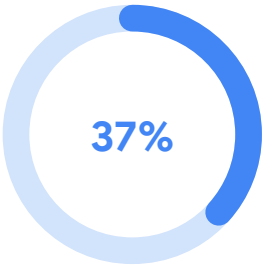
Operators are already considering factors such as bill volatility and contract duration to identify statistically significant churn predictors. With AI, a wider range of data signals can be used on a more dynamic basis to build and continuously improve 1:1 churn prediction. Once customers at greatest risk are identified, operators can use AI/ML to test and optimize churn mitigation strategies or offers according to the customer situation.

In a post-cookie era, the data generated and captured during customer contacts could prove invaluable for a range of retention strategies. Operators should plan how to capture and analyze this information in their CDP from the very outset.

With CCAI Insights, operators can use contact center interaction data to support decision-making and drive efficiency. Further, AI can be used to analyze the data that CCAI generates. For example, operators can process call/chat recordings and transcripts to identify frustrated customers, and put mitigation measures in place before the operator receives a line porting request from a competitor.

“In a post-cookie era, the data generated and captured during customer contacts could prove invaluable for a range of upsell/cross-sell efforts and retention strategies.”

Achieve results with powerful inights



Only **37% of CSPs generate actionable insights from analytics**[11] to improve customer satisfaction and reduce costs.

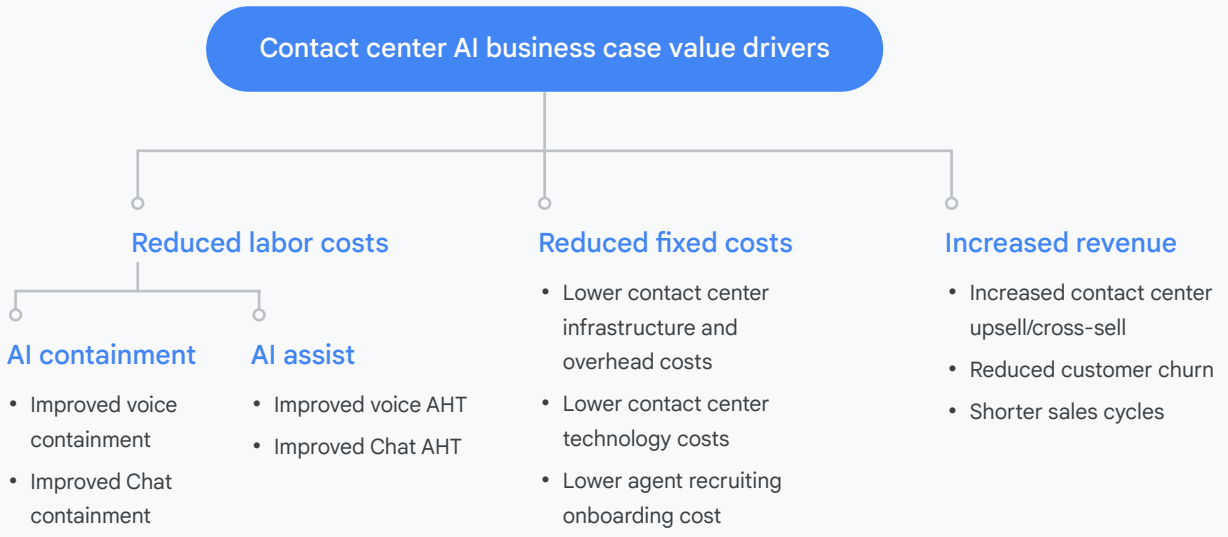
With **CCAI**, Natural Language Processing (NLP) is used to analyze sentiment and language to deliver better customer experiences.

11. McKinsey & Co., How advanced analytics can help contact centers put the customer first, 2019.

Understanding value:
Contact Center AI deep dive

The business value of AI typically comes down to cost reduction, employee productivity, and revenue uplift. In the case of CCAI, cost reduction is immediately apparent. Based on our experiences with a number of large global CSPs, we estimate that operators can save over 50% on call and chat unit costs on target use cases in their **contact centers alone**.[12] As well as reducing direct contact-handling costs, CCAI can materially impact support and overheads, and contribute to revenue generation and retention.

High-level value drivers of CCAI



12. Source: Google analysis based on selected customer reference cases.

For any operator considering an investment in CCAI, there are five key dimensions that determine its specific potential value: **scope**, **timeline**, **effectiveness**, **cost structure**, and **revenue upside**.

Five dimensions of CCAI business value

Scope

- Business units
- Use cases
- Voice or chat
- Contain or assist

Timeline

- System
- Complexity
- API maturity
- MVP vs “5 9’s”

Effectiveness

- Steering
- Contains
- Assist
- Launch vs optimum

Cost Structure

- Agent labor
- Current IVR/chat system
- Implementation

Revenue Upside

- CSAT/NPS
- Churn prevention
- Sales conversion
- Upsell/cross-sell

Scope

This is the first and most foundational element to get clarity on. It could be simple ('handle everything!') or complex ('handle chat agent assist for the mobile business unit in market/region X, but only for billing or account questions, not tech support or sales').

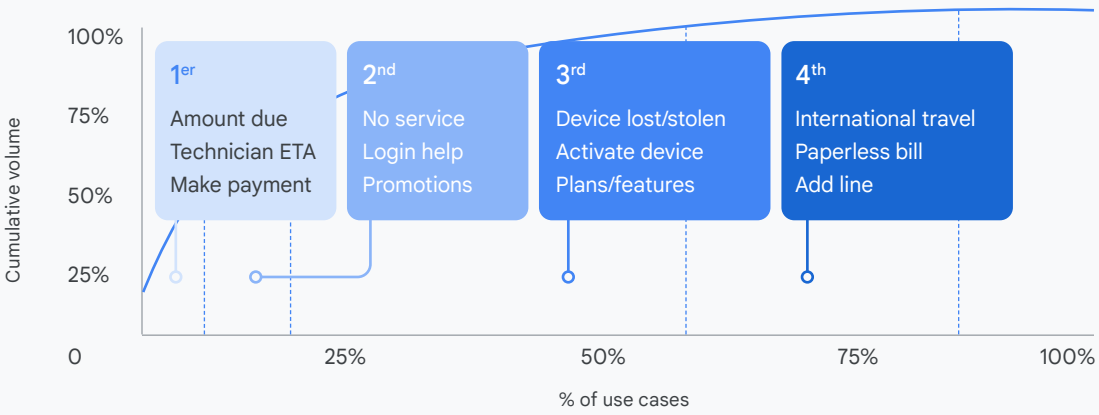
To work out what's required, ask questions like:

- What types of contacts? Chats, calls, both?
- What's the goal? Virtual agent handling and containment of inbound contacts? Human agent assistance? Both?
- Which lines of business or geographies?
- Which use cases would you address? Are there any you would not entrust to AI (e.g., cancel service, hardship, or bereavement)?
- How might the scope change over time?

Use cases typically fall into a classic Pareto curve, revealing that tackling a few key use cases can drive outsized impact. In the example shown in Figure 6, approximately 10% of the use cases account for 50% of the volume, the next 15% drive 25% of the volume, etc. So an operator might launch with a selection of the highest-impact use cases, and then expand to more use cases until the marginal cost exceeds the marginal benefit (Figure 6).

Illustrative analysis of contact volumes to inform priorities, scope, and timeline[13]

Cumulative volume vs % of use cases (illustrative)



13. Google anonymized analysis of data from a sample of CSPs.

Timeline

The second major driver of value is how quickly the operator can implement the chosen scope and shift volume to CCAI, and the pace at which it can launch new use cases and optimize existing ones. This can be influenced by factors such as:

Complexity

The complexity of the current systems environment (e.g., number of different in-house and vendor solutions).

Integration

How robust the integration mechanisms are (e.g., fully featured and well-defined APIs).

Implementation

How to resource the implementation (e.g., in-house vs. outsourced to Google Professional Services or a Systems Integrator).

Resourcing

Internal resources available, and their bandwidth, for both pre and post-launch.

Operating Spectrum

Where the operator stands on the 'MVP to Five 9s' spectrum, and what this means for pre-launch testing.

Once in production, how quickly will contact volume ramp up.

Effectiveness

At a high level, CCAI effectiveness can be defined in terms of 'contain effectiveness' (the percentage of contacts it can handle and resolve without having to transfer out to a human agent) and 'assist effectiveness' (the percentage decrease in AHT inclusive of post-contact activities).

In reality, it can be more complex. Effectiveness varies considerably based on the difficulty of each use case, by voice vs. chat, and even the underlying complexity of the operator's services. It's important to understand the basis for the effectiveness levels being measured, and ensuring they align with the scope.

For example, an overall contain effectiveness of 30% would underestimate value if the operator wants to start with simple use cases like 'What's my balance?' and 'I'd like to pay my bill'—where CCAI may exceed twice that rate. Conversely, an operator looking to expand from simple use cases to more complex ones would be well served to expect lower effectiveness, at least at the outset.

On the **Agent Assist** side, it may seem intuitive to begin with simpler human agent use cases, but the shorter duration may make it difficult to realize significant reductions in AHT. In contrast, longer and more difficult contacts may be harder to implement, but could offer a greater opportunity to move the needle and reduce cost.

As well as considering how effectiveness may change as the mix of use cases changes, operators should also consider that data-driven AI optimizations and tuning of the Conversational Core should result in significant improvements over time.

> With CCAI Insights, TELUS is looking at processing 20 million voice calls for analytics. This will help agents resolve customer inquiries faster with less effort, leading to significant savings via agent effort reduction in year one of production."
>
> **Mike Kellner,** Director,
> AI Data & Analytics, TELUS

Cost structure

To maximize the value of CCAI, operators should develop a detailed view of all costs that can be impacted across the contact center—not just the direct agent labor costs—and what metrics drive changes (e.g., volumes, number of agents, contract duration).

Labor

Many operators refer to 'agent hourly rates' or 'cost per contact' metrics. But the better ones look at cost from a more granular level—for example, labor costs and benefit/tax loadings by location, or contact center management costs and ratios. It is also worth considering 'second order' labor savings—for example, increased employee satisfaction leading to higher retention rates.

IT & communications

Every contact center has a constellation of systems, ranging from telephony and IVR systems, to speech-to-text services, providers of voice and/or chat virtual agents, and agent desktop software. Depending on the current landscape and the envisioned scope for AI, some of those systems may be redundant and could be retired.

Allocated costs

As with any business function, allocated costs will occur. Operators should consider how CCAI might impact them in real, not allocated, terms—and in three major categories:

- Costs driven by contact center volume and staffing (e.g., IT cost per employee) in a more-or-less linear fashion
- Contact center costs such as real estate costs that are allocated but not strictly fixed, and might be avoided if agent-handled volume decreases sufficiently
- More general corporate overhead loadings, which for practical purposes are fixed and hence do not see a real increase/decrease with changes to contact center operations

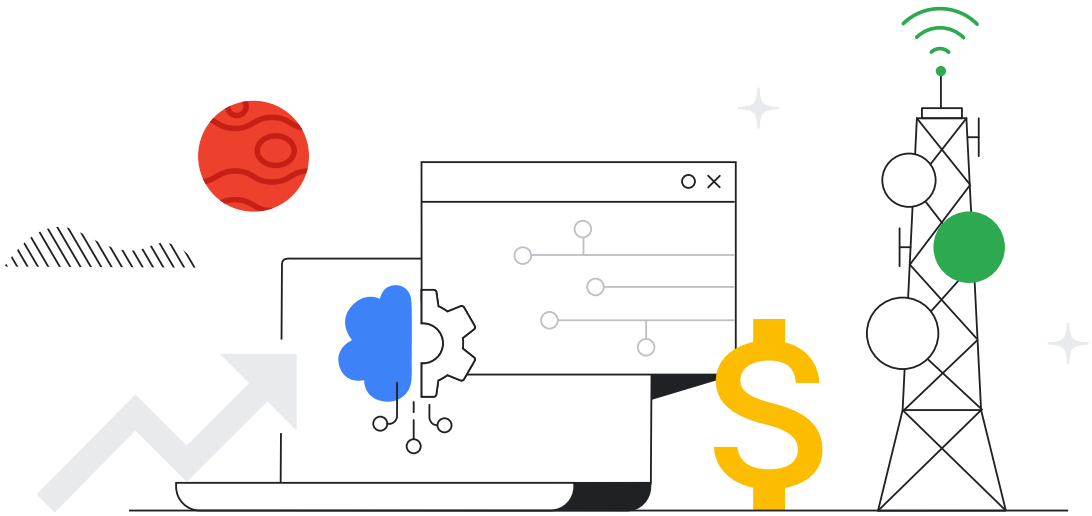
Implementation costs

An operator's decision about how to resource the CCAI implementation will have a direct impact on overall costs. Some areas will require specialist knowledge that has to be procured externally, and others where resourcing is more a tradeoff of speed vs. cost. In addition to providing 'hands on keyboards', successful operators factor in a robust change management program to realign, retrain, and refocus staff.

Revenue upside

Most operators can build a robust business case to support an investment in CCAI based on cost savings alone. However, progressive operators are just as interested in the potential to grow top line revenue.

Chief among these drivers is increased customer satisfaction arising from CCAI's ability to deliver a better experience, not just a lower-cost one. As evidenced by its impact on leading metrics such as NPS and trailing metrics like churn, this is not just wishful thinking—it's real business value, realized. For sales-oriented contact centers, AI also holds promise for pulling revenue forward through shorter sales cycles, and for increasing Average Revenue Per User (ARPU) and average margin by AI-driven upselling recommendations.



Conclusion

AI/ML technologies can transform CX. Yet it requires thoughtful preparation and commitment to iterative progress.

There is a sizable learning curve to building and operating AI/ML platforms, and operators that dive in first, with an initial set of applications, will move ahead faster than their competitors. They will be quicker to climb both the technical and the value learning curve—so they are better positioned to capture value from both initial and emerging applications, faster.

More importantly, operators should maintain a sharp focus on realizing and measuring the value envisioned during the investment decision process. Properly done, the AI/ML business case should point the way to implementation and operating KPIs. Executives should monitor these KPIs closely to ensure implementation remains on-track, with early signals on what to improve. Investments in transformation using AI/ML can be substantial, and no company—whether operator, cloud provider, or solution provider—can afford to let the program become just another 'hype cycle science experiment' that fails to deliver customer improvements.

About the authors

Sean Allbee, Subash Chordia and Dima Ceban are Senior Principals in Google Cloud's Customer Value & Transformation Advisory (CVTA) practice, and based out of the United States, the United Kingdom, and Australia respectively. Google's CVTAs drive success by proving out customers how a Google Cloud partnership is differentiated and will create significant value to accelerate their transformation.

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Contact Center AI (CCAI)

Google Cloud AI solutions