

Technology, Media & Telecommunications Practice

How AI is helping revolutionize telco service operations

Solutions that enable advanced retail experiences, smarter scheduling, self-healing, and better coaching can reduce complexity, lower costs, and make both customers and employees happier.

by Jorge Amar, Tomás Lajous, Shreya Majumder, and Zachary Surak



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Operations in the telecommunications industry is often said to be one of the most complex aspects of the business to run, and the most successful telcos tend to be those that outperform at this task. It requires a simultaneous, coordinated, and dynamic approach across business units, each of which alone would be a giant business to run. In recent years, artificial intelligence has had the potential to simplify the task by optimizing various functions that make up operations. Telcos are only just beginning to utilize that promise, with operators finding success with AI solutions that help optimize service operations journeys, such as the in-store customer experience, call center use, and deployment of employees in stores, call centers, and the field.

The intensely challenging economic landscape that telcos have had to navigate in recent years makes the prospect of investment in new solutions daunting. The value at stake, though, is potentially quite significant. Leading telcos have already begun to deploy AI in their field and service operations. So too have upstart digital attackers entering the landscape as networks become increasingly software defined and cloud based. Remaining competitive will necessitate keeping up with both the technology and the front-runners.

Why now is the time to deploy AI

Field and service operations account for 60 to 70 percent of most telcos' operating budgets, so applying AI can offer real and rapid benefits. The industry has already faced a decade-plus of increasing cost pressure, and the returns on necessary infrastructure investments are barely outpacing the cost of capital. Now the sector must cope with the pandemic-related changes to how people work and shop, which have caused demand to surpass all expectations. At the same time, staffing telco operations functions has become increasingly difficult, with labor shortages and new coronavirus variants further complicating the process. Holding on to workers is also harder than ever, especially in the United States, where 40

percent of employees say they're likely to leave their current jobs within the next three to six months.¹

To stay ahead, operators will need to make critical investment decisions around customer and employee experience. At the same time, they need to offer efficient and effective processes to keep costs down while increasing retention of both customers and employees. These are the very areas where front-runner telcos are deploying AI solutions and finding success. As the following use cases illustrate, those solutions fall into several categories: smart scheduling and forecasting; store-of-the-future experiences enabled by machine learning–driven personalization and other basic operational efficiency; self-healing in which problems are either preempted or solved automatically; and smart coaching.

Enhancing the retail customer experience. A critical area in which AI tools can help enhance operations is the retail setting, where store-of-the-future technologies and tools along with smart scheduling and forecasting can assist in breaking through the bottlenecks that plague the current retail experience. Getting a phone line activated can take up to an hour on average, making the retail setting a prime opportunity for upselling. In the United States, for example, some 40 to 50 percent of phone sales happen in a retail setting, and 70 percent of those transactions involve the purchase of an accessory such as a protective screen cover, phone case, or headphones. Yet customers are left to sit idly while their phone line is set up and their purchase completed.

AI tools can put that time to better use. In addition to personalized ads and offers targeted to the customers in a store at a given time, analytics-driven integration of telcos' online and physical retail functions could solve the problem of devices and accessories being out of stock or unavailable at a particular location. Better use of analytics could allow retail stores to ship items to customers'

¹ Aaron De Smet, Bonnie Dowling, Marino Mugayar-Baldocchi, and Bill Schaninger, "Great Attrition or 'Great Attraction'? The choice is yours," *McKinsey Quarterly*, September 8, 2021.

homes if something is out of stock at a particular site, much the way fashion retailers have begun to. In that case, telcos could offer a fully customizable supply of accessories at all its locations, and satisfy a larger share of its customers. (For more on personalization in the store of the future, see “[The future of shopping: Technology everywhere]” on McKinsey.com.)

Making this a reality, however, requires that a retail outlet has sufficient staff on hand to help customers with their decision journey and purchases. This is where smart scheduling can help. Customers’ ability to get what they need when they want it correlates closely to overall customer acquisition and retention rates, so having enough staff on duty is critical. Forecasting staffing needs in the retail setting, however, remains difficult. Existing tools don’t offer enough precision to anticipate a telco’s retail hiring needs. A hot new phone release or upcoming holiday shopping are predictable enough, but foreseeing rush times that don’t seem to be connected to anything is trickier. A spreadsheet alone is not powerful enough to understand the forces at work and make adequate predictions. Also, such forecasting functions are typically siloed in disparate systems, preventing the scheduling process from being made dynamic and operating in real time.

AI tools such as machine learning can eliminate much of the guesswork and manual processes that most operators currently use to forecast retail staffing needs and schedule them appropriately. Done well, these tools can dramatically reduce the problem of overstaffing and understaffing. By building predictive models that augment historical internal data with information such as demographic, income, and search trend data, telcos can forecast staffing needs with up to 80 percent accuracy at the retail level.

Implementation of smart scheduling enabled one telco to realize improvements in cost savings, service levels, and sales. With more than 10,000 retail employees across 1,500 locations, the company had struggled to avoid understaffing that resulted in overtime costs as well as overstaffing that left employees with too much downtime. The

company had multiple workforce management teams using a combination of spreadsheets and third-party tools to try to forecast demand and schedule employees. In addition to being slow, the process wasn’t accurate enough.

The company combined internal data with external information such as demographics and online search trends to build dashboards on top of its core AI models for forecasting and schedule optimization, with an initial pilot ready in about three months. These dashboards provided unprecedented transparency and visibility to workforce schedulers, such as previously hidden peaks and troughs in demand for and availability of labor, allowing much greater precision in scheduling for retail staff. Over time, the company saw 10 to 20 percent cost savings through better hiring and scheduling, as well as a 10 to 20 percent increase in sales through improved response to customer demand. Additionally, it saw utilization of retail staff increase by 5 to 10 percent, by redeploying idle time.

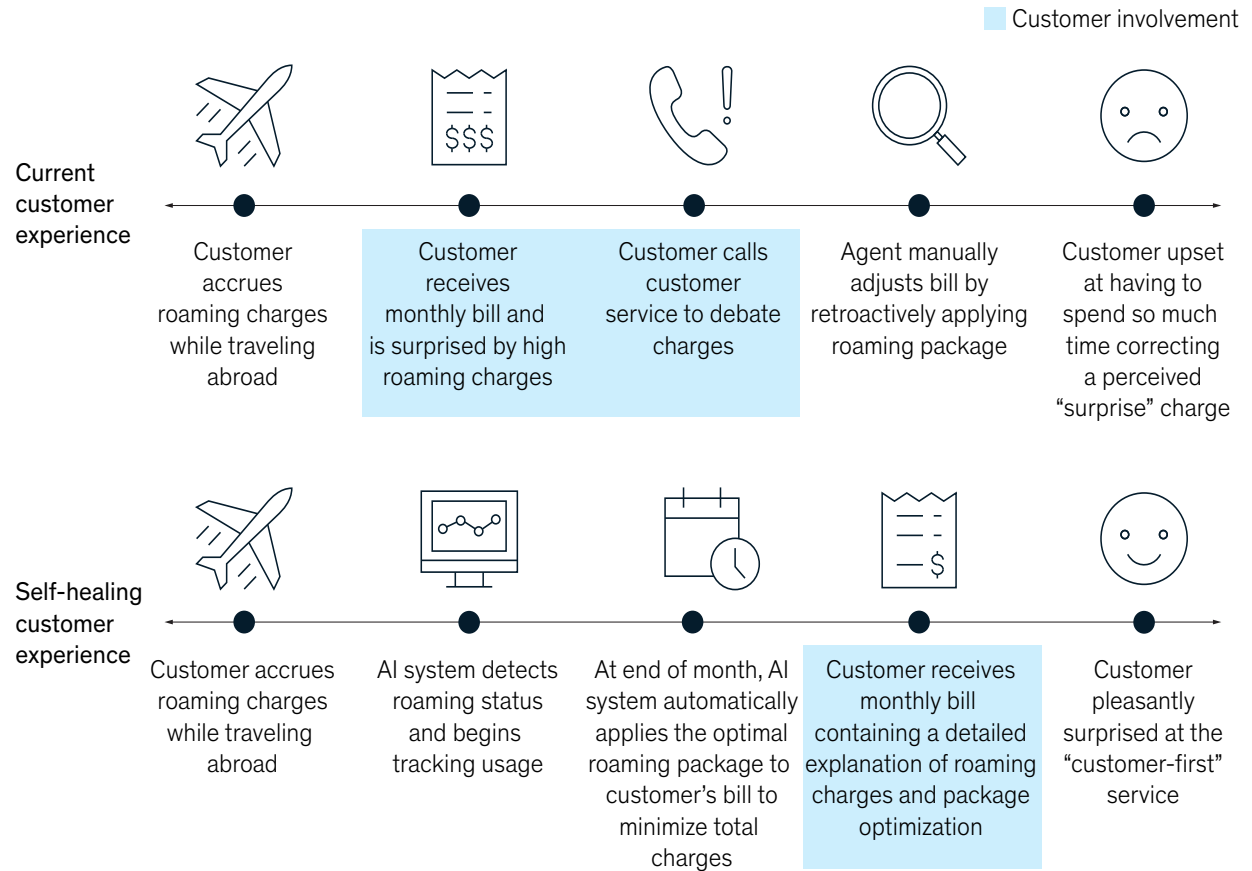
Improving operations in the contact center. As AI applications become increasingly sophisticated, leading telcos look not only to reduce customer need to call or message regarding problems that could be prevented or solved in other ways. They also want to ensure upsell opportunities that could result from a contact are maximized. These self-healing solutions involve a number of processes (see Exhibit 1).

For example, billing inquiries are a major source of customer calls. A self-healing solution would consider the primary driver of the billing issue at hand, along with the customer’s billing history, lifetime value, and propensity to call based on a bill change, and then take any number of different actions. One customer might just need an explanation included with their bill to be satisfied, while another customer might need a retroactive data package applied. And still another customer might be likely to choose an upgrade or take some other revenue-enhancing action, in which case it might be better for them to call.

Such a self-healing solution would involve clustering different customer profiles to identify

Exhibit 1

Self-healing AI solutions can strengthen both operational efficiency and brand loyalty by turning a potential billing dispute into a positive customer experience.



their propensity to call and the likely revenue and customer lifetime value impact of their call. At the same time it would predict what impact different identified self-healing actions would have and pinpoint the best action to grow customer lifetime value. Once in place, the self-healing solution could be augmented with a machine-learning feedback loop to reflect the effectiveness of the actions taken, thus enabling the solution to become increasingly precise in its decisions.

A self-healing AI could also help reduce call center demand by troubleshooting issues with wireline devices (for example, a router that is

slowing down could be identified and repaired before the customer even notices). A solution that runs continuous checks on device speed and performance could triangulate one device's performance against that of nearby devices to determine the best course of action to take. If the problem is that a customer's router needs to be reset or configuration changes downloaded, this could be done remotely at a time when the customer isn't actively using the device and without their knowing a problem had arisen.

If the problem required customer intervention, the solution would predict the customer's propensity

to call about the issue before either sending them an alert or prepping the necessary information to reduce the length of the eventual call. For an issue that requires on-site resolution, a truck and crew could be dispatched before customers notice the slower network speed and call to complain.

These kinds of measures can help telcos drastically reduce call volumes, which improves the customer experience by enabling agents to dedicate time to truly complex, value-added activities. For example, spending more time on calls that require direct customer interaction to address a critical need or offer education on products and services can provide a better experience and lead to improved customer satisfaction. This also improves the employee experience, as workers' capabilities are put to better use and the number of dissatisfied customers they have to handle is reduced. Over time, this can help strengthen operational efficiency and build brand loyalty.

As with retail outlet staffing, call center staffing can benefit greatly from AI-driven smart scheduling to ensure the right call center employees are on duty at the right time (see Exhibit 2). Better information

on what types of customers call and why can be combined with workforce scheduling systems to optimize staffing levels and timing. Combining AI-powered forecasting with a multichannel schedule optimizer that can assign agents across functions, including the call center, message center, and even retail stores, creates a feedback loop that allows the system to grow more intelligent.

One telco with several thousand call center agents built core AI models for forecasting and schedule optimization, with the resulting dashboards enabling 10 to 20 percent improvement in overtime costs and more efficient use of staff, as well as enhanced customer experience. Additionally, the time required by workforce management to manage forecasting and scheduling was cut in half, and the company saw 30 percent greater flexibility in worker allocations across locations and job types through centralized scheduling that spanned multiple business units.

Improving the field force capabilities. On the field force journey, telcos have to perform a balancing act between customers, employees, and external forces over which they have little control. Smart

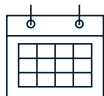
Exhibit 2

By using smart scheduling and forecasting, telcos can ensure the right call center employees are on duty at the right time, improving both staffing efficiency and customer experience in the process.



Optimize shift composition

More effectively match labor supply to call demand and use a variety of shift lengths to improve occupancy and reduce overscheduling



Enable more dynamic shifts

Incentivize reps to allow schedule flexibility and leverage work from home for non-contiguous shifts



Update shifts more frequently

Run shift bid process more frequently for subset of shifts to agilely address staffing misalignment

AI coaching solutions can help improve the performance and service levels of frontline workers and their supervisors, as well as the experience of customers and employees. These sophisticated tools use machine-learning algorithms to generate performance insights along with coaching resources that rely on employees' normalized performance metrics as inputs. The result is timely and situationally relevant digital instruction, as well as celebratory nudges, to help encourage desired behaviors (see Exhibit 3).

One telco that piloted AI-based smart coaching with its distributed workforce of more than a few thousand employees found that it was able to solve the problem of not having an effective way to differentiate coaching based on individual employees' needs. The company knew it needed to improve key metrics across productivity, quality, learning effectiveness, and level of engagement, and built an AI-driven coaching program that would address all four areas.

The program was able to identify personalized coaching opportunities based on past performance and deliver targeted nudges and best practices

directly to employees' handheld devices. Not only did this approach help to increase employee performance, but it ultimately boosted job satisfaction as well.

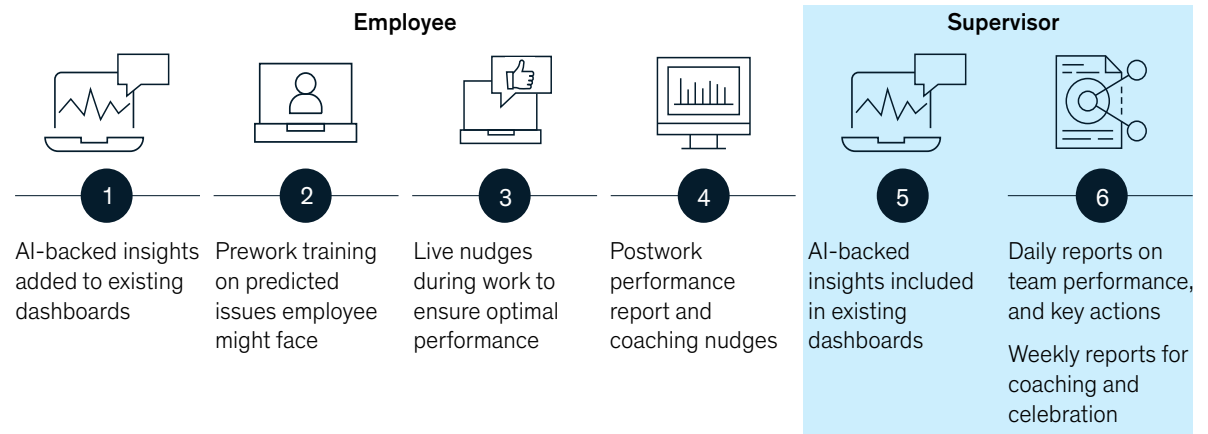
Field force operations can also benefit from smart scheduling, particularly when it comes to on-time arrival of technicians. Weather, traffic, and other external forces can all have a major impact on scheduling, which in turn affects customer and employee experience, especially when both technician and customer end up calling in response to a late arrival.

As with call center and retail scheduling, an ML-based AI can use historical data to reveal causes of delays that are otherwise unclear and then combine that data with weather and traffic data to dynamically reschedule technicians in the field. The solution could even assess the likelihood of technical hitches arising based on historical and customer data, and alert the technicians to which parts are likely to be needed for that day's visits.

One telco that built a solution using historical data on seasonality, routing of technicians, and other

Exhibit 3

AI-based smart coaching can improve frontline worker performance and service levels by delivering relevant digital instruction and targeted nudges to help encourage desired behaviors.



external factors such as traffic and weather created up to 80 to 90 percent improved accuracy in its forecasting and workforce management.

Getting started

Telcos that are just getting started with AI to support their service operations or are thinking about doing so would benefit from considering some best practices already battle-tested by the front-runners, including the following actions:

- Identify the top use cases for AI for each business unit and its relevant service operations journeys—call centers, retail, and in-store uses, or field operations, for example—based on the most critical gaps or pain points. Then run a prioritization exercise to rank the opportunities and use cases according to feasibility, impact, and ease of implementation.
- Determine the availability of data for each use case being considered and create a road map for the data asset build that will be needed to enable it.
- Start with descriptive analytics and use an agile approach in the early phases of the AI-driven

service ops journey, layering on predictive and prescriptive analytics to construct a strong foundation. Building minimum viable products through dedicated sprints and scaling up based on a continuous learning approach will help ensure strong outcomes.

- Set up teams in AI pods that incorporate both technical talent as well as business leads and subject-matter experts, depending on the use case. Working jointly, these cross-functional experts develop and test the AI use cases and solutions.

Although telco operators continue to face formidable headwinds, artificial intelligence can help mitigate them, with service ops a particularly ripe opportunity. The ubiquity of technology and the growing application of AI and ML in particular are enabling a new wave of growth and disruption. Telcos that take this opportunity to continue to innovate on this path are more likely to emerge as the undisputed leaders in the long run.

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