The New CX Standard: Location Data-Based Models for Driving Cost Savings and Improving Customer Satisfaction in Field Service Customer Journeys

An Operational Practice prepared for SCTE/ISBE by

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Introduction

Face-to-face field service interactions are the most critical step of the cable customer's journey. Because these occur in a customer's home, they are intimate, memorable and often the most powerful reference a customer will have by which to measure a brand. However, field service interactions are historically viewed by customers and field service technicians alike as frustrating, high-friction events - primarily due to their uncertain and unpredictable nature.

Successful field service interactions can launch long-term, loyal customer relationships and increase employee satisfaction and retention. But one mistake can create a cord-cutter, and frustrated customers can likewise drive costly employee churn.

Field service success, in this context, means delivering phenomenal customer experiences. Doing so requires 1) equipping both field service technicians *and* customers with access to high caliber tools and technology *and* 2) empowering them to effectively engage with one another during the appointment journey. That's not to say that only perfectly executed field service appointments are successful. It's impossible to account for every variable and thus impossible to give all customers precise information (service windows, arrival time, completion time, etc) and guarantee results.

Rather, successful field service engagements require humanizing two-way interactions and multi-party coordination in order to respect everyone's time and emphasize the "service" component. More simply, customer and employee satisfaction increases if you make a reasonable commitment, keep everyone informed, and meet the commitment or communicate issues early. Traffic patterns and human error will render any estimated arrival time obsolete, for cable technicians or taxis and ride-hailing apps, but continuous updates and real-time visibility can make even that experience positive. Likewise, advance communication and flexible customer reschedule options can remove the technician's anxiety when approaching the door of a subscriber who has waited hours past their expected appointment time.

Cable operators that excel in delivering insight-driven, customer-centric field service don't just get happy customers and employees: these multi-system operators (MSOs) also reap revenue and operational benefits as a direct result of deeper engagement between customers and technicians. Customers that are fully informed about a technician's arrival are:

- less likely to call customer care asking "Where's my tech?"
- less likely to abandon the appointment, requiring another truck-roll or losing the subscriber completely
- more likely to facilitate the technician's quick access, resulting in faster completion times

- eligible to be billed immediately following an installation (accelerating or retaining revenue that would be rescheduled or lost)

A location-based approach to customer experience (CX) in field service delivers concrete financial impact.

Content

1. Learning Outcomes

The described customer-oriented approach to field service can be achieved by leveraging mobility, on-demand location data and popular consumer devices and engagement channels. Cable operators can simultaneously create satisfied, long-term customer relationships and drive significant savings by focusing on two best practices.

I. Effectively coordinate *where* and *when* the people and resources required for a successful field service engagement will be.
II. Communicate this critical *where* and *when* information to stakeholders holistically - before, during and after a field service event, *and* via each subscriber's preferred communication channel(s).

This operational paper demonstrates how to leverage location-based data to build an "Uberized" view of field service - a digital, interactive experience focused on the customer and built with their needs in mind. This live insight improves customer and employee experiences in field service operations, and simultaneously drives revenue growth and cost savings.

2. Customer Experience Market Landscape

Today's consumers have more options and less brand loyalty. Personalized experiences, transparency, responding appropriately in emotionally charged situations and just knowing when to be front-and-center in a crucial customer service moment versus when to take a back seat, are critical differentiators for service organizations.

2.1. Customer Experience Must Be a Priority

Most companies understand that customer experience should be a priority. However, many don't understand what it truly takes to build a customer-centric business model, don't have the resources to fund necessary improvements, or simply can't keep up with the rapidly changing demands of consumer and business customers.

2.2. Customer Experience is Inconstant

Consumers are continually redefining their standards for "good customer service." In part, this is based on the new norms established by emerging consumer technologies. Other times, competition can disrupt the status quo and encourage customers to take a more critical look at the level of service they should expect from the brands with which they do business. Today, competition extends far beyond direct competition from other cable operators and even over-the-top (OTT) providers. Cable providers are service providers;

they are being compared to every company with a product or service that's delivered to a customer's home or business.

Customer service channels continue to morph and fragment at an astounding pace. Ten years ago "omni-channel" meant phone + email and maybe a website FAQ. Yet some organizations still face significant challenges in effectively executing on those three basic channels. Single channel self-service will soon be obsolete, as customers will expect robust self-serve capabilities that fluidly transition across any device or channel throughout their journey and even during "independent" service interactions.

2.3. Customer Experience is Future-Oriented

Industry experts point to several shifts in the future of customer service.

2.3.1. CX Will Become "Micro"

In its "2017 Predictions: Dynamics That Will Shape The Future In The Age Of The Customer," Forrester Research predicts: "CX will go micro to design signature moments that win the hearts, minds, and wallets of customers."

No matter how carefully the complete customer journey is crafted, a customer's loyalty may come down to a single interaction. It will be important to understand which moments in the customer experience journey are likely to be the most visible, most anxiety-inducing or represent the greatest opportunity for additional revenue capture - and craft a high-value and/or frictionless experience around that moment of truth.

2.3.2. Digital CX Strikes a Balance Between Continuous and Unobtrusive

"Digital experience and engagement will draw people into nonstop virtual interactions," according to Gartner's 2017 strategic digital disruption predictions.

While the micro CX trend requires preparation around likely moments of truth, delivering continuous digital CX requires giving customers a constant, real-time stream of contextually relevant information about their interactions with you. The trick is to make data available without overwhelming customers, so they can choose the most relevant moments to engage. Customers will want to interact periodically, at their own discretion. While they may appreciate occasional nudges to check back for significant updates, interruption won't be tolerated.

2.3.3. Self-Service Morphs Into Proactive Service

Originally designed to deflect costly phone calls, self-service is now the *preferred* channel for many customers for simple inquiries. As previously mentioned, standard self-service portals have become status quo and people often expect self-service on any channel - a smart phone, social media app, smart watch or a chat bot on a Slack plugin.

For businesses already offering multiple self-service options, the next level is predicting and proactively solving probable issues. Proactive communication with customers about activities that impact them directly can be a powerful first step toward proactive service. If you can anticipate customer needs and keep them informed about how you will - or how you already have - solved a problem, it's a big win. Just remember: customers want proactive service, not intrusive service. There's a massive difference between

making a timely recommendation for a plan that better fits a customer's consumption and usage habits and bombarding someone with ads for irrelevant upgrade offers.

2.3.4. Messaging Becomes Oxymoronic: Automated and Humanized

Interacting via popular messaging applications is not new, but continued consumer adoption will require an enhanced customer experience via these "concise" channels. Text-based updates are good. Interactive, multimedia experiences embedded within popular channels are better. Being present where customers spend their time, and engaging them in meaningful two-way conversations is the only way to win the service race. It will be critical to build interactive digital experiences that not only inform, but also allow customers to change elements of a service interaction that don't fit their preferences, or that just are not feasible - such as rescheduling an appointment when soccer practice gets changed. The alternative is to speak loudly and definitively through a virtual megaphone, and hope customers are still listening on the other end.

2.4. Customer Experience is a Competitive Differentiator

In the "good old days" the technology platform required to deliver residential video, data and voice services was expensive, as was the creative process that produced the content that drove adoption of these services. That meant a huge barrier to entry for challenger brands, leading to relatively few over-builders. Today the world is flat: the digital revolution has democratized access to the services and content, as well as the tools of production. Anyone can make a video and reach millions of viewers via YouTube or Twitter. So while a fast pipe into homes and businesses is an advantage, it's no longer *the* advantage.

2.4.1. Incumbent or Innovative

Even worse, those assets require continuous care and maintenance, forcing incumbents to focus time, energy and capital on their existing business. As noted by Clayton Christensen in The Innovator's Dilemma, "The very decision-making and resource- allocation processes that are key to the success of established companies are the [ones] that reject disruptive technologies." Meanwhile, new entrants don't have these same legacy advantages...or constraints. Many will fail because the high cost of entry, but those that succeed do so because they solve things differently. *They innovate*!

Taxi and car-rental companies maintain vehicles and train employees, while Uber and Lyft use social feedback to ensure a quality experience for the riders and drivers. Hotel chains refurbish rooms and invest in rewards programs while Airbnb has a near limitless supply of inventory but minimal overhead (1 percent of the employee-base of Hilton or Marriott and no hotels). *Service is the primary differentiator*, and the digital disruptors have led the way in this.

2.4.2. Apples & Oranges is Apples & Apples

This high bar permeates every industry. Customer service in cable is not compared with other cable providers (of course) or just telcos and satellite companies. The modern, digital consumer compares every experience against "all service providers." The iPhone interface affects how consumers perceive the latest release of an electronic programming guide, down to the font choice. Netflix recommendations on what to watch or Amazon "people who bought X also bought Y" suggestions set the expectation that everything comes with an expert opinion and curated recommendation.

The *experience* has become a central part of the product or service. Brands are defining themselves based on the experiences they deliver. Consider home furnishing retailer West Elm, who launched a line of hotels to extend the experience customers have with its products. The new paradigm is centered on data-driven, predictive and personalized user experiences. Consumers don't confine their judgement of a good customer experience to each industry, which means you can't afford to only measure yourself against your direct competitors.

If you are not measuring yourself against legendary service leaders like Nordstrom's, Amazon, Disney, and Trader Joe's, you are not looking through your customer's eyes. The pay-TV and ISPs who achieve a 64-65 industry average ACSI rating should look to the 83 of Breweries and Internet Retailers, or the 87 of TV and Video Players for inspiration. Maybe you won't win hearts and wallets with 2-day free shipping, but there are lessons to be had.

2.5. Customer Experience is Challenging

Delivering outstanding service has grown significantly more complex.

2.5.1. Field Service Challenges

A good field service experience (for customers) is dependent on two things: whether they are informed (and thus, empowered) and whether their need was met during the first visit (first call resolution). Even with sophisticated automation and optimization, field service is inherently unpredictable. It's impossible to provide a precise arrival time, every time. And the farther out you are from the appointment window, the more things can change. Assigning the right technician with the right skills and parts won't prevent unforeseen complications. And even when the field service technician arrives within the service window and is equipped to do the job, there's still a risk as to whether the customer will be there and prepared for the appointment. Success depends on continuously engaging customers so they are invested, and so they trust and respect their service provider enough to be around for the appointment.

2.5.2. Cable Industry Challenges

Beyond the standard field service complexities, cable operators face several unique barriers. First and foremost, the persistent "cable guy" reputation can create a negative experience through confirmation bias. A customer expecting a late, unprepared, poorly equipped and unprofessional technician is sure to find one of those things. Particularly in cable, where pop culture has transformed the frontline service professional into a villain, this can be detrimental to retaining skilled technicians. Adding to this legacy of poor service is the challenge of outdated technology systems - often siloed, overly customized and not user-centric. Technicians struggling to find accurate customer service history or get accurate home diagnostics are starting at a disadvantage. Again, it's much harder to retain technicians who don't feel empowered with modern tools to help them be effective on the job (especially when they compare those tools to their Galaxy S7s and iPads).

Despite these challenges, it *is* possible to provide customers with a positive experience, and to respond quickly when things don't go smoothly. The goal should be to build a customer engagement model using data that's not only common across these disparate systems and people, but which will continue to be relevant as customer preferences and technologies morph and change. This paper explains how **location** data plays a critical role in that successful approach.

2.6. Historical Approach

Cable operators and software vendors alike have attempted to solve the core challenge – colloquially called the "waiting without knowing" or "where's my technician?" problem - in several ways.

2.6.1. Workforce Expansion

"Throwing bodies at the problem" remains a popular approach. More people can do more work, be on-time more often, etc. But adding in-house technicians is a commitment, and securing contract labor requires planning and effort. In either case, people are expensive.

2.6.2. Routing & Scheduling Optimization

Optimization creates both field and back office efficiencies that, theoretically, create more accurate service windows and better customer-facing communications. An efficient workforce arrives on-time and prepared more often. But many things can undermine this including adoption curves, compliance gaps, and as noted above, the dynamic nature of field operations. Without a way to continuously communicate updated appointment information, there's still a risk of a customer-technician miss.

2.6.3. Statistical and Predictive Modeling

Likewise, some technological approaches rely on statistical analysis and complex modeling to provide a much narrower service window and more accurate ETA. This can improve scheduled windows (to a point) depending on the accuracy of the historical inputs and appointment details. But this puts the field organization on the hook for a tighter schedule with less margin for error. And without trust in the service provider, and effective two-way communication channels, customers may not trust the prediction, leading to frustration, inbound calls or abandoning the appointment all together.

2.6.4. Call Center Automation

One tactic is to wait until customers reach out, then divert inbound "Where's my tech?" calls to an automated answering service. Some service providers even offer status updates via a self-service portal. This is more cost-effective than having live-agent support handle calls, but it requires significant upfront deployment costs and internal change management to ensure new processes are adopted. It can also frustrate customers.

2.6.5. Proactive Customer Notifications

"Don't call us, we'll call you." Outbound reminder calls, emails and text messages can help inform customers. However, adoption of (high-attention) SMS is still very low while other channels suffer from low contact rates. Transactional notifications do not foster rich engagement, while only reminding customers of the original service window does not add value. Even "on the way" alerts can often surprise customers with little advanced warning, or fail based on poor field compliance.

3. Opportunities

This paper proposes that MSOs leverage location-based data as the foundation for building rich digital customer journeys that improve awareness, engagement and satisfaction throughout the end-to-end field

service lifecycle. Case examples demonstrate this approach results in improvements to four key areas: customer satisfaction, customer engagement, operational efficiencies and revenue growth.

3.1. Key Performance Metrics

Not every performance metric will be relevant to every business model. Following is a list of common metrics that have been used to measure the impact of location-driven customer experience journeys for field services. Some overlap and some are complementary. Choose three to five that are realistic for you to impact and measure closely, and which will serve as the best indicators for whether you'll achieve your desired outcome (e.g. customer experience, revenue generation, cost savings).

3.1.1. Customer Satisfaction

3.1.1.1. Customer ratings

- **Net Promoter Score (NPS):** indicator of long-term or transactional customer happiness based on "willingness to recommend" question; typically measured in absolute value (-100 to 100) and progress is seen based on point increase
- **Customer satisfaction (CSAT)**: indicator of short-term customer happiness based on sliding scale responses of satisfied and very satisfied; typically measured in absolute value (0 to 10 or 100) with progress seen based on point increase
- **5-star feedback rating:** measures a customer's satisfaction with a given service interaction, notably the location-driven digital journey for field service engagement

3.1.1.2. Retention/customer churn

The ultimate measure of customer loyalty, or lack thereof; service providers should measure year-over year (YoY) or month-over-month (MoM) retention of subscribers/households, RGUs, $/£/€, etc.

3.1.1.3. Response speed (to feedback)

Although this is a driver of satisfaction and not a measure of it like the items above, minimizing your response time to issues (days out booking on repairs, follow-up on low ratings or complaints) will likely correlate with customer sentiment.

3.1.2. Customer Engagement

3.1.2.1. "My Account" activity

Measures user engagement with a service provider's web-based portal or customer service application.

3.1.2.2. Customer contact information (provided or updated

Demonstrates a customer's willingness to share personally identifiable information (PII), useful for future outreach.

3.1.2.3. Notification opt-in

Signals a customer's trust in your brand based on their willingness to receive continuous updates regarding service or appointment status.

3.1.2.4. Engagement by appointment stage

Provides insight regarding when customers are most interested in appointment-related information, and can be analyzed to identify important customer "moments of truth" on which to focus.

3.1.2.5. Customer-initiated communication

Additional chat and phone requests represent initial cost increases, as does deploying automation and self-service tools, but ultimately these drive savings by offsetting wasted truck rolls due to customer no-shows, deflecting expensive calls to customer care, and preventing revenue loss due to new customer abandonment.

3.1.2.6. Customer no shows

Directly impact re-roll costs and revenue attrition; this can also indicate a customer's lack of respect for your company/brand.

3.1.3. Operational Efficiencies

3.1.3.1. Inbound "Where's my technician?" calls

Decreases result in savings multiplied by the cost per call to customer care; some service providers also measure improvements in average handling time (AHT) based on CSRs having ready access to field service information to share with customers.

3.1.3.2. Customers not at home (reschedule for another day)

With a misaligned customer schedule, technicians waste time and costs go up with a second truck-roll; improvements here directly impact operating margins and speed time to revenue (for installation and upgrade appointments).

3.1.3.3. Suspended appointments (same-day returns)

Frequently due to a missing part, skill or customer schedule misalignment, this increases costs due to repeat truck-rolls and decreases first-time completion rates, imposing a second visit on customers for a single issue.

3.1.3.4. First-time installations or resolutions

A key indicator of operational efficiency as well as a high correlation with customer satisfaction scores, it also delivers faster time to revenue.

3.1.3.5. Task execution time

Decreases resulting from available and prepared customers (no re-rolls, no waiting for access) creates efficiencies resulting in field productivity gains.

3.1.3.6. Daily completions

Increases result from faster task execution time and ability of technicians to troubleshoot for missing parts, equipment and expertise in the field.

3.1.3.7. Service window met

One of the best "all in" metrics indicating operational health, this often correlates strongly with customer satisfaction.

3.1.4. Revenue Growth

3.1.4.1. Cancellations (lost revenue)

Reducing new customer cancellations directly prevents lost revenue; making narrow appointment window commitments and meeting them helps prevent new subscriber abandonment.

3.1.4.2. Rescheduled appointments (delayed revenue)

Increases can drive short-term cost increases but can prevent cancellations and unrecoverable revenue.

3.1.4.3. Time to revenue

Accelerates in relation to higher first-time completion rates.

3.1.4.4. Missed service level agreement (SLA) penalties

Impact profitability but can be minimized through improvements to operational performance as previously described.

3.1.4.5. Expansion/upsell success

Many studies have shown that growing with an existing customer is much easier than acquiring a new one; increasing the spend of your established customer base is a good indicator of whether they are satisfied with your current service, and you can take advantage of customer engagement with the digital customer experience to surface timely offers.

4. Approach

Don't rely only on pre-planning, reactive re-optimization or outmoded methods of customer communication. This approach assumes that everything will *not* go as planned. This paper shows how to use location data and location sharing to first coordinate the arrival of all the necessary people and equipment at the service location, and then create an interactive digital experience to inform customers and field service teams alike with continuous updates and real-time insight.

4.1. Overview of Steps

At the highest level, there are four core steps in this approach.

I. Collect the necessary data to understand WHERE all required people and resources are as the impending field service event approaches.
II. Leverage this contextual location intelligence to assess WHEN the required elements will arrive at the service destination.
III. Keep everyone informed, starting early and ongoing.
    a. The primary focus should be on keeping customers informed
    b. Back office staff like customer care representatives and dispatchers can also benefit from this same insight to ensure maximum operational efficiencies (when to reassign, send help, who to send, etc.).
    c. Field supervisors can use this same information to provide onsite assistance or conduct spot-checks as needed.
IV. Enable continuous bidirectional customer updates with an omni-channel approach, so they can choose how they engage with you.

4.2. Required Resources

Resources required to successfully leverage location data to deliver an Uber-like customer engagement include people, places & things (data, devices and applications). It's precisely the mobile and distributed nature of these required resources that make them ideally suited building blocks for developing location-driven customer experience journeys.

4.2.1. People, Places & Things

4.2.1.1. Customer(s)

Inherently mobile despite appointments assigned to their stationary home or business; connected via many web-enabled devices.

4.2.1.2. Field service technician(s)

In-house or contractor employees tasked with completing a set of appointments (installations, maintenance, repairs, trouble calls, etc.) each day; want to use the same tools at work that they use at home.

4.2.1.3. Customer care representative or dispatcher

Tasked with creating service work orders and assigning them (sometimes with help from an automation solution) to field service technicians; also typically fields inbound customer calls regarding appointment status updates.

4.2.1.4. Service garage and/or parts depot

Facility where field teams acquire the vehicle, equipment, parts and inventory required for the day's (or several days') work; may also include ancillary facilities that house spare parts and inventory slated for return.

4.2.1.5. Parts and inventory

Bulk, in truck stock or assigned to a customer or location; also, might be distributed amongst teams and depots.

4.2.1.6. Vehicle

Method of transportation, mobile storage and frequently a hub of power, telemetry and sometimes technician connectivity.

4.2.2. Data

4.2.2.1. Real-time location of primary field service representative

Can be collected from a mobile client application installed on a technician's device (custom-built or off-the-shelf field service or fleet management application), telematics device installed in the technician's vehicle; specialized vehicle hardware (e.g. car topper, OEM navigation system, sensor, etc.), GPS data from a web-enabled device, etc.

Must be accurate and have negligible delay.

4.2.2.2. [Optional] Real-time location of secondary field service representative(s)

May be necessary to coordinate a part swap or on-site assistance to ensure a first-time completion.

4.2.2.3. Service destination

Geocoded address or latitude/longitude position of a customer's home or business, or a network component requiring service.

4.2.2.4. Route and traffic data (and related corporate policies)

Can be obtained from any mapping provider. However, special considerations for routing preferences should be considered in advance and factored into planning.

For example, service appointments requiring special equipment, or operations policy might call for right-side routing, in which the vehicle's right side must arrive facing the final destination.

4.2.2.5. [Optional] Available and sourceable inventory

Available to the technician and back office dispatch.

4.2.2.6. Other Optional Data

Data which is not required but which can contribute to a more robust digital experience for the end-customer

- Promised service date and time window
- Work order or delivery identifier
- Selected work order or delivery details (sender, weight etc.)
- Additional customer preferences (preferred method of entry, security clearance, etc.)
- Technician information (photo, name and unique ID #)

4.2.3. Devices

In this methodology, devices serve two primary purposes. First, they are used to collect the required data. The approach can work regardless of the device used to collect location data, as long as that data can be collected continuously and in near real-time. Common devices used include smartphones, tablets, vehicle-mounted fleet management hardware and sensors.

Second, determine which devices you expect customers to use to engage in the digital appointment experience. A web-based approach can empower customers with insight on any Internet-enabled device from a PC to a smartphone. For emerging devices including wearables, automobile head units, smart home electronics and even home IoT devices such as Amazon's Echo, you'll need to identify the appropriate API calls or embed the appropriate applications to receive and communicate technician location and ETA updates.

4.2.4. Applications

None of the following applications are required. However, these can be helpful in automating certain steps of the detailed procedure covered in the next section of this paper.

4.2.4.1. Field Service Management (FSM)

Actions completed within the FSM can be leveraged to automate proactive customer notifications and updates to the customer-facing digital experience.

4.2.4.2. Customer Relationship Management (CRM)

Actions completed in the CRM (e.g. creating a work order, booking a field service appointment, confirming a new appointment, or assigning a work order to a field service resource) can be leveraged to automate proactive customer notifications and updates to the customer-facing digital experience.

Additionally, the CRM can supply optional data such as service window, appointment details, customer address, etc.

4.2.4.3. Enterprise Resource Planning (ERP)

Useful for supplying accurate insight regarding parts and inventory, equipment, SLAs, warranties, etc.

4.2.5. Communications Methodology

Consider whether you will host the customer-facing "Uberized" experience independently, or as an embedded element in a customer self-service portal.

Additionally, determine a preferred method (or multiple methods) for communicating with customers to 1) set the initial expectation that they'll have access to a new digital experience to track their pending field service appointment and 2) provide timely notifications when their technician's location and ETA change significantly. Notifications might come as SMS, MMS, email, a My Account push notification or a combination of these. Customer contact information will need to be collected and/or updated and verified. Decide whether to manage these notifications internally or outsource to a third party.

Finally, determine whether it's important to make real-time technician location available and searchable to field service team members, managers, dispatchers and customer care representatives - and if so, the best way to display this insight. For example, do you want location and ETA data made available to an IVR in order to provide updates to customers that call in looking for an update?

4.3. Detailed Procedure

The following describes how to apply the core steps to deliver insight about the status, ETA and technician location to a customer for their field service appointment.

Step One: Collect the necessary data to understand WHERE all required people and resources are as the impending field service event approaches.

1A: Secure a location data stream for the field service technician (from mobile device, field service management application, fleet tracking hardware, etc.).

1B: Associate location data with real-time route and traffic data.

1C: Scrub technician personally identifiable information (PII) to ensure their personal contact information and any non-standard customer-facing information is not shared without consent.

1D: If delivery of a spare part or assistance from a nearby team-member is required, acquire location data stream(s) for additional resources.

Step Two: Leverage this contextual location intelligence to assess WHEN the required elements will arrive at the service destination.

2A: Set the current location and appointment address as a journey endpoint.

2B: Calculate real-time ETA based on technician's dynamic location.

2C: Collect new location data and update real-time ETA following preset intervals.

2D: If additional resources are dispatched (per 1C), calculate ETA for each individually, and as a group.

2E: Confirm (through location data source) the technician's arrival onsite.

Step Three: Keep everyone informed, starting early and ongoing. The primary focus should be keeping customers informed, but back office staff like customer care representatives and dispatchers can also benefit from insight in order to ensure maximum operational efficiencies as well as to keep customers informed.

3A: Secure customer opt-in for receiving appointment related communications.

3B: Collect, update and/or verify customer contact information and preferences.

3C: Build and launch a web-based viewer containing modular components for displaying relevant appointment data throughout the complete appointment lifecycle. Baseline components should include an ETA countdown/estimator and a map view of the technician's location (which will start as an approximate location and progress to a precise live location for the assigned technician).

[The process for acquiring data to build this experience is described in steps one and two.]

Optional components include the ability to confirm, cancel or reschedule an appointment, add a pending appointment to a personal calendar, view technician photo and other relevant information, as well as service window or SLA, and work order details.

3D: Best practices indicate that brand-specific experience design as well as messaging prompting customers to check back for updates help achieve higher levels of engagement.

3E: The link hosting the web-based experience should remain consistent throughout the entire appointment lifecycle, though what's displayed on the web viewer should be frequently updated.

3F: Immediately following the creation of a new work order and/or appointment, send a confirmation notification to the customer. The notification should contain the appointment-specific link. At this stage, the web viewer can confirm the appointment date and time and include text explaining that a live view and ETA for the technician will be available on the day of the appointment. It's easiest if this action is prompted through integration with the CRM or work order management system, but can also be managed manually by back office staff.

3G: On the morning of the appointment, update the web viewer to display the estimated service window and language prompting the customer to check back for a live view and ETA closer to the start of the service window. Send another notification. It's easiest if the update and notification are triggered by the assignment of a work order to a specific technician in a dispatch or field service management console, but can also be managed manually for organizations using simple calendaring tools for dispatch.

3H: Upon completion of the previous appointment (or upon departure from the field service depot or warehouse), leverage location data stream and ETA calculations from steps one and two to display real-time technician location on a map, and ETA countdown in minutes. Send a third customer notification. It's most effective to launch the viewer update to "live" status through integration with a field service management application that can indicate when a field service technician has completed the previous appointment or has updated his status to "en route" or "traveling."

3I: Display arrival confirmation on web viewer once technician is on site.

3J: Leverage web viewer engagement and screen-space to request customer feedback regarding the overall appointment experience. For an advanced approach, use integrations with customer service and social marketing tools to enable notifications to customer care to reach out to unhappy customers or enable satisfied customers to share good feedback with their friends.

3K: Expose the web-based journey viewer to dispatchers and customer care representatives.

3L: Ensure technician compliance (for the most accurate location sharing experience) by securing their support early. Include technician leadership in planning sessions and leverage their expertise to help you determine the most accurate data sources.

3M: Consider including personalized advertisements as part of the digital appointment tracker to promote upsell and cross sell activity.

Step Four: Enable continuous customer updates with an omni-channel approach so they can choose how they engage with you.

4A: Establish and refine primary web-based viewer experience. At a minimum, customers should be able to engage with the experience you've built via any standard web browser on any standard Internet-enabled device.

4B: Research which non-standard channels are most commonly used by your customer base - and prioritize. For example, companies with app-heavy customer care approaches might consider how engagement with a My Account app might be increased if available on a smartwatch or automobile head unit. A tech savvy customer base may prompt you to explore translating this web-based experience into insight that's accessible through voice-enabled IoT devices or chat bot-driven messaging applications.

4C: Develop partnerships and research how APIs and SDKs can be utilized to push live technician location and ETA updates to these preferred devices and channels.

4.4. Practical Applications

The location-based approach for improved customer experience is demonstrably useful for the most obvious cable field service use case, in which a customer must be present and prepared at their home or business in order to complete a successful field service. However, this model can also be applied to two other use cases in order to increase first-time resolution, which directly impacts both customer satisfaction and operational efficiencies.

Use Case #1: B2C/B2B service event in which the customer must provide the technician access to the property and ensure all obstacles are removed (e.g. barking dog is put away or security clearance is provided to restricted zones).

Use Case #2: Technician requires additional talent/skills from a colleague or manager, or requires specialized equipment (e.g. an extension ladder) not currently in his or her possession.

In this use case, add an additional technician/truck icon to the web-based customer journey viewer to alert the customer that help is required. Use the standard process, but simply display both relevant resources in a single viewer.

Use Case #3: Technician requires a part to achieve first time resolution which he does not currently have access to in the vehicle or at the job site.

A recent Aberdeen Group report found the top reason for a failed service visit is parts unavailability. If this is a common challenge in your field service organization, consider modifying the location-based CX model to also support better sourcing of spare parts in type of case.

Start by logging all inventory (assets, parts, consumables) and making it discoverable based on its location or affiliation with a vehicle. This will provide back-office and technician visibility into all parts options. If you integrate your parts management system with your fleet management or field service system and enable parts lookup and ordering directly from the technician's field service application, you can achieve maximum efficiency.

Next, determine if you'll also allow the customer to track the delivery of the spare part(s). If so, and if the spare part will be delivered by a courier service or a colleague, simply add the additional resource's location and ETA as in use case #2. If so and the technician must pick up the spare part himself from a warehouse, parts depot or from a colleague's job site or vehicle, the approach will be different. You can display the pickup location as a new point of interest in the live map web viewer, and share the technician's location as he travels there prior to the final service destination as part of the "live" location sharing customer journey phase. Or, create an additional phase in the web-based customer journey that confirms the technician is currently "picking up a part" at an approximate location and adjusts the ETA countdown accordingly.

If you don't want to show this logistical coordination to customers at all, simply enable technicians to share location with one another (using any number of consumer location sharing applications). For this approach to deliver maximum customer satisfaction, technicians will still need a method for communicating parts-related delays to customers, managers and dispatchers.

5. Tracking Results

5.1. Recording of Results and Analysis Best Practices

Prior to launching your new model for location-based customer experience, select the KPIs most important to your organization. As outlined in the Key Performance Metrics section of this paper, this model can generate results across four key categories: customer satisfaction, customer engagement, operational excellence and revenue growth. Focus on the metrics that will best support your business case, or which align most closely with your corporate goals.

Certain performance metrics can indicate success in multiple areas. For example, an increase in first time completions will often translate into increased NPS as well as operational savings calculated by multiplying the average cost for a truck roll by the reduction in required re-rolls.

Next, set benchmarks for your selected KPIs. This will be key for demonstrating results. If you don't have access to benchmark measurements for your core KPIs, it's important to define success prior to launching your new customer engagement model. Use a combination of industry averages and aspirational targets. For example, if part of the new initiative is to also start measuring NPS for the first time in the history of

your organization, work with your team to develop a realistic goal for the first week, month and year. Plan for fluctuations.

Don't expect to see significant improvement overnight. Establish a cadence for recording results and assessing change to demonstrate continued progress. Measure customer engagement with notifications, the web-based interactive experience and live map viewer by stage for each appointment - but also assess whether engagement levels are trending up or down from a week to week and even month to month basis. Likewise, record whether location was successfully shared for each appointment, as this can be a key factor impacting many common KPIs.

For metrics like the number of appointments completed overall, average job completion time or number of appointments completed on time, record daily results and monitor incremental improvements. Be sure to account for seasonality and other initiatives that may impact your results. Savings from inbound call volume deflection and revenue growth generated from prevented cancellations can be impactful on a weekly basis. Likewise, some organizations have been able to assess results and identify areas for improvement with weekly analysis of NPS. Overall cost savings (resulting from re-rolls and operational efficiencies) are most effectively measured and compared on a month-to-month basis.

Customer satisfaction levels and anecdotal feedback should be measured for every service interaction - and you'll need a benchmark for how quickly you're able to respond to negative or highly positive feedback. A method for quickly recognizing negative feedback can help you identify employees who need skills training or service coaching. Don't forget to monitor overall improvement (or irregular dips) in customer satisfaction across the entire field service organization on a weekly and monthly basis.

5.2. Success Examples

Companies who embrace the location-driven model for digital customer engagement have seen near-instant benefits.

Table 1 – Examples of Results

Industry	Location	Solution	Benefit
Cable	Europe	Partial notification process w/iterative updates including a live map technician view	+14-points NPS lift (at peak) in 8 weeks
Cable	U.S. National	Complete notification process with iterative updates including a live map technician view	$10s of thousands monthly in wasted truck rolls; increased monthly revenue (achieved by preventing cancellations and reschedules)
Furniture Retailer	Southern California	One SMS with a link to a live tracker and ETA countdown	10% drop in customer not-at-home

Results data provided by Glympse.

5.3. Troubleshooting

Though offering customers a live map view and ETA countdown for their field service appointment (continuously updated with strategic notifications) can deliver phenomenal benefits, you'll want to keep refining your processes in order to achieve maximum results.

The most common errors when building digital CX hubs centered on location sharing and tracking are:

- Live location sharing fails during the last mile.
- Customers don't engage with the location-based digital journey.

Consider the following methods to prevent or overcome these errors.

5.3.1. Live location sharing fails during the last mile.

Technician compliance is the primary factor impacting whether location is/is not shared (and thus, whether the ETA is correct) on the day of service. Involve technicians, their leadership and union representatives early in the process to secure buy in. Overcome privacy objections by demonstrating how technician contact information will be anonymized. Explain the benefits to field workers of a better-managed customer journey and how improved customers' perceptions will set-up technicians for success at the job site. Use this project to demonstrate your commitment to empowering and retaining technicians by offering them the most updated technology. Provide training and establish habits to ensure technicians are logged into the appropriate application and have the appropriate GPS settings enabled on their smart devices.

Technician non-compliance is not always a result of unwillingness to cooperate. If you're relying on a CRM or field service management application to trigger customer-facing location sharing, check to ensure technicians, care representatives and dispatchers regularly comply with the actions in those systems that will drive your new digital customer engagement initiative.

Technology can also be the culprit preventing location-sharing, so be sure to check the end-to-end tools and systems you are employing, from devices/carriers with poor connectivity, to deficient network components that fail to pass the necessary data, to poorly designed integrations that inconsistently update the required systems. There are many potential points of failure to consider and avoid.

5.3.2. Customers don't engage with the location-based digital journey.

Even though customers are familiar with digital journey viewers for ride sharing apps and simple food and package delivery trackers, this experience may be unexpected coming from their MSO. Secure opt-in, preferences and update customer contact information as part of the appointment booking process. Remember to set expectations early by telling customer's they'll get a live ETA and map view of their technician on the day of service, and remind them as the appointment draws closer. The most common reason customers don't engage is because they don't understand the potential benefit of doing so. Education is key.

Likewise, compliance among call center representatives can make or break an effort to explain the new location-sharing digital journey. Using systems (e.g. mandatory contact information fields) and processes

(e.g. tracking and reporting on sign-up compliance or incentives for top performers) to promote their role in customer awareness is a key step in driving engagement.

Others notice high customer engagement during certain stages in the customer-facing journey, but much lower engagement in other stages. You can use this insight as an opportunity to identify which areas of the holistic field service process may need improvement from both an operations and service execution perspective. Or, lukewarm engagement during certain stages in the digital journey might simply indicate where to scale back on your proactive communication and/or digital journey.

Conclusion

Location data and the application of that data to create interactive, location-sharing experiences can provide end-customers with critical insight about the status of a field service. Armed with a continuously updated ETA and confirmed by a live map view, customers are empowered to better manage their schedules and believe that you respect their valuable time. The result: customers are there, prepared and have a positive attitude regarding field service representatives, and technicians, improving the technician experience and odds of success. Not only can you use this approach to improve overall customer satisfaction and NPS, but a robust CX hub that enriches technician location sharing activity improves customer engagement with your brand, and through more efficient channels. Engaged, informed customers reduce customer care costs and improve field team efficiency, resulting in operational savings that can easily justify the cost of this and future customer service initiatives.

Abbreviations

B2B	business-to-business
B2C	business-to-consumer
CRM	customer relationships management technology
CSAT	customer satisfaction
CX	customer experience
ERP	enterprise resource planning system
ETA	estimated time of arrival
FAQ	frequently asked questions
FSM	field service management software
MMS	multimedia messaging service
MoM	month-over-month
MSO	multi-system operator
NPS	Net Promoter Score
OTT	over-the-top
PII	personally identifiable information
RGU	
SMS	short message service
SLA	service level agreement
YoY	year-over-year

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