Driven principally by the methods and success of digital e-commerce brands, customer experience is now the competitive yardstick by which most global brands measure themselves. As part of the cloud generation, most consumers and many business buyers now expect personalized, omni-channel and holistic experiences. Becoming customer-centric is about shifting your entire organization to focus on the customer experience and building customer-centric KPIs into your performance management systems. New analytics and indexes, such as the Customer Experience Index (CEI) are needed to supplement Net Promoter Scores (NPS) to help you understand why customers become dissatisfied and to help you predict what actions you can take that will prevent incidents and improve your customers’ experience and your NPS. This requires data, artificial intelligence (AI) and machine-learning (ML) software that can identify anomalies, make predictions and arrive at actionable insights, including those actions that have the highest probability of meeting your customer’s objectives (next best action or NBA). These programs simplify the complexity of tracking the customer journey and analyzing the data from all customer touch points. They make it possible to prioritize automated actions for VIP customers and ensure that SLAs for enterprise customers are maintained. Finally, we look at a number of real-world use cases that are already showing how this can be done.
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Introduction

“Customer experience has always been important. But more so now than in the past, it is the one thing operators can really differentiate themselves with.”

—Justin van der Lande, Analysys Mason.

Retail trends in almost every market now point to the online, digital customer experience as not only accepted by most consumers, but also setting the standard for consumer-facing businesses of all kinds.\(^1\) B2B statistics show a similar embrace of e-commerce.\(^2\) While there are a variety of reasons for the rapid growth and success of online, ranging from price to convenience, the customer experience (CX) is frequently cited in the top three. For most brand marketers, who may have difficulty differentiating their products on either price or convenience, CX is their primary focus and has been for a few years. Their new mantra is “customers buy experiences, not products.” Facing the same pressures and market dynamics, telecom operators have pivoted in recent years to putting almost as much emphasis on CX as, pricing and network quality.\(^3\)

If we look more closely at the online CX we see the same things mentioned consistently: personalization, omni-channel and a 360° holistic view of the customer. The advantage of a digital interface is that it is instantly customizable. Using data for all the touch points in the customer journey, companies are able to reflect the customer’s preferences in a variety of compelling ways, making the experience more personal. Using a digital twin of the customer identity, companies can also ensure continuity across channels. For instance, a purchase that is half completed on a mobile phone, in store, can be completed on a PC or tablet, when the customer gets home. Cloud-generation customers now expect this frictionless omni-channel experience.

This consistent customer identity, which is also contextual and dynamic, enables the company to track the experience end-to-end, from initial marketing contact to sales and after-sales interactions, as well as care and operations and networks, fixed and mobile. This is another way in which both continuity and personalization can be reinforced. Data must be integrated across silos so that a customer rep in marketing, care, operations and networks is, at any point in the customer lifecycle, aware of the customer’s history and recent interactions. It also helps them to anticipate new needs and offer products or services when the customer most needs them, rather than when the company needs to clear inventory.

\(^1\) Although only 10 percent of global retail sales in 2017, e-commerce is growing at 25 percent (YoY). In the leading online market, the US, it is expected that by 2019, 80 percent of US shoppers will have made at least one online purchase. According to Forrester, B2B e-commerce is expected to hit $1.2 trillion by 2021, comprising 13.1% of all B2B sales.

\(^2\) According to Forrester, B2B e-commerce is expected to hit $1.2 trillion by 2021, comprising 13.1% of all B2B sales. In Nokia’s 2016 Acquisition and Customer Retention Study, “customer care” was the fastest growing category of concern for operators (https://www.youtube.com/watch?v=IYCo5CJVnpQ).

\(^3\) In Nokia’s 2016 Acquisition and Customer Retention Study, “customer care” was the fastest growing category of concern for operators (https://www.youtube.com/watch?v=IYCo5CJVnpQ).
With this holistic, data-driven 360° perspective, even a very large business can give the customer an experience that approximates to that provided by the small businesses in their neighborhood, with which they might interact daily such as the local green grocer or neighborhood coffee shop. Analytics can further augment the customers’ data and, mixed with AI and machine-learning, can further help to automate actions, for example, to optimize network performance based on customer insights, or automate customer engagements or care interactions for VIP customers or automate SLA monitoring for the enterprises.

Measuring customer experiences

Digital technologies built around comprehensive customer data can mimic a personal experience. However, unlike the local barista who knows your regular order and habits and can probably gauge your unhappiness and get direct feedback on the service, large brands have to find other ways to measure customer dissatisfaction. The industry standard measure is the Net Promoter Score (NPS), which captures the customer’s loyalty based on his or her likelihood to recommend the company, product or service to a friend or colleague.

There are many affordable and casual ways in which to survey the NPS of a customer, but it is harder and more expensive to “close the loop” and identify what may have caused dissatisfaction. For instance, many customers are willing to provide feedback anonymously, but when they indicate a low willingness to promote, you often need to talk to them directly to understand why. This is sometimes not possible and, even when possible, it is always expensive and time-consuming. And, in the new dynamic digital era, it may come too late. There are more modern data-driven ways to conquer this challenge and find out the cause for unhappiness even before the customer experience is impacted.

In the competitive and fast moving world of telecom and digital services, customers are becoming less loyal as the price of switching becomes trivial — and there are disruptors everywhere. Churn is one of the most expensive costs for any business and, for network operators, there are direct negative correlations between the rate of churn and EBITDA.⁴ Often the decision to churn happens in response to an incident that is never even reported.

⁴ Based on research by Tefficient on the relationship between churn and EBITDA in over 100 operators worldwide.
NPS as a measure is critical, but it is weak on the “why”. In other words, it doesn’t help anticipate the issues that lead to dissatisfaction. But if you are trying to avoid silently churning customers, it becomes imperative to be able to anticipate what issues lead to customer dissatisfaction and to be proactive about solving them before they lead to churn. The trick is to know the relationship between the event and the experience. You need something that provides NPS with intelligence that can generate real-time customer insights and proactive actions based on predictive capabilities. You need to be able to anticipate.

The cloud generation of consumers is in the driver’s seat — and they can be very demanding. Winning businesses find a way to keep ahead of them and anticipate what they will want and solve problems before they arise.

Figure 2: The digital generation customer experience

Generation digital customer experience

The advantage that CSPs and other digitally oriented companies enjoy, such as an Amazon, Apple or Walmart, is their easy ability to collect data on such a wide variety of parameters. For instance, beyond network service, CSPs have a broad contextual and real-time knowledge of the customer’s current experience that they can measure. This includes most customer touch points, including customer app performance, location, charging, billing, rate plans, interactions with customer care and value-added services, all of which can be correlated to sales, network operations, business services, customer care and field operations, as well as measurements of NPS.

Artificial intelligence and machine learning (AI/ML) are the key technologies for drawing insights and actions out of all this data. This leads to a different measure of satisfaction, the customer experience index (CEI). Based on years of historical data correlating NPS to actual customer experiences (marketing, network, operations and care), machine-learning algorithms are able to analyze real-time data streams and correlate shifts in customer NPS to specific kinds of incidents such as service interruptions, CPE configuration issues, changes in pricing, bundling changes, app or device issues, security breaches and poor customer care. Armed

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5 Walmart is the #1 brick-and-mortar retailer in the world so it seems like an unusual addition to this list. Surprisingly, in the US, it is third or fourth in e-commerce as well (depending on your index). It is far below Amazon, which has over 43 percent of the market and gets 1.87 billion shoppers per month, but it is very close to Apple in terms of online sales and, in 2017, had an average monthly traffic of 339 million (Forbes). Other brick-and-mortar retailers that have developed significant online presence, along with Apple and Walmart, include Home Depot and Target. This illustrates the importance of extending the omni-channel experience to physical retail channels. Amazon, interestingly, has not only purchased the grocery chain, Whole Foods, but is planning to open up thousands of AmazonGo retail locations over the next few years. The next trend in retail is to digitalize the in-store experience to be similar to online. CSPs should be looking at linking their brick-and-mortar stores more closely to online as well.
with these correlations over thousands of customer interaction and able to tap into the living and streaming data from all customer touch points, it becomes possible to predict and act on those issues that typically lead to dissatisfaction, churn and low NPS.

Figure 3: Customer experience index

The CEI is an always-on measure of the 360° customer perspective. It is constantly building on its real-time and historical database of correlations to become better at predicting those incidents that will lead to low or high NPS. It is dynamic and responsive because it is focused on understanding the customer happiness. And because it abstracts the data from customer identities to draw correlations, it protects the privacy of customers.

Figure 4: Improving on NPS
Next best actions

Digital customers operate in ‘digital time’. They expect immediate gratification, not because they are overindulgent, but simply because that is their everyday experience in the digital world. What this means is that the companies that succeed are those that are the fastest at analyzing the data, identifying their customers’ intent and presenting them with relevant solutions or offers. Not all moments are relevant, so part of the magic of good algorithms is the ability to understand what is the next best action (NBA).

NBA turns data, insights and predictions into suggestions for automated actions. In such a world of immediate gratification and frictionless experience, it is only a slight exaggeration to say that your brand is only as valuable as your NBA. Once in place, the machine-learning algorithm behind NBA learns which actions are most likely to lead to which results. In other words, it isn’t just about predicting trouble, it can predict how best to strengthen customer satisfaction and loyalty.

CEI insights can, for instance, directly trigger NBA actions such as alerting a retention team about the customer who’s about to churn, directing an operations team to fix the problem quickly for a high value customer, or generating automated communications that warn of a coming issue, explain it and provide self-care options for averting it or preventing the issue happening in the first place. In contrast to reacting to a low NPS score, which in digital time will be too late, this is a proactive approach to customer satisfaction that may even build a better NPS. It provides NPS with an intelligent software wrapper for real-time customer insights, predictions and anomalies and actions.

AI-driven customer and business experience

In order for this approach to work, it cannot be something that is tacked onto the current mode of operations. It must be at the center of the business, intelligently connecting marketing, operations, network and care. Traditionally, these departments have operated in silos. The data they keep on the customer is often not integrated. Many of these departments have adopted AI/ML but are only using them for point solutions in their area of responsibility. This is sub-optimal because the strength of AI/ML is the depth and breadth of possible data correlations. The more holistic the data, the more accurate the algorithms become.
Figure 5: The strength of AI/ML is the depth and breadth of data sourced, which requires integrating front and back office data, including marketing, care, network and operations i.e. customer and network facing data.

Bringing siloed data lakes together is not trivial. On the technical level, it will require an enterprise-wide architectural shift to a common cloud strategy for data storage, the adoption of common data sets and data models and a shared cognitive analytics and AI environment. But the real barrier is more likely cultural; each of these functional silos is probably rewarded by functionally defined KPIs. Shifting to a customer-centric, experience-focused culture across the organization is essential. NPS and CEI have to be built into everyone’s KPIs, as they now are in the world’s top brands.

Table 1. Customer experience transformation, powered by data, analytics and AI

<table>
<thead>
<tr>
<th>Function</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>From network-centric to customer-centric</td>
</tr>
<tr>
<td>Marketing</td>
<td>From mass audiences and broadcast media to micro-segmented, personalized, digital time offers</td>
</tr>
<tr>
<td>Innovation</td>
<td>From inside-out to outside-in, data-driven</td>
</tr>
<tr>
<td>Speed</td>
<td>From slow-moving to business at the speed of data</td>
</tr>
<tr>
<td>Operations</td>
<td>From manual to automation-native, closed loop processes</td>
</tr>
<tr>
<td>Networks</td>
<td>From physical networks to software-defined NFV/cloud</td>
</tr>
</tbody>
</table>

To be more specific, we can look at the transformation, function by function, as in table 1. Marketing has to move from its mass audience, broadcast model for demand generation. It has to move to a micro-segmented model using persona-driven profiles to tailor messages and offers that are triggered by actual events or actions taken by the customer, rather than internal product introductions, for instance where the product team drives the product introduction. Similarly, innovation has to be data-driven using an agile, DevOps approach where ideas are quickly tested, failure is frequent and successful ideas can be scaled rapidly.
For CSPs, the cultural shift hits the hardest in operations and networks. Fortunately, the shift to software-defined networks (SDN) and network-function virtualization (NFV) is underway. But it has to go farther than simply running isolated network functions on COTTS hardware. From the core and edge to universal CPE, devices and IoT, the network has to go cloud-native, using a highly flexible microservices architecture that is dynamically orchestrated by cognitive analytics and closed-loop processes. This will require a shift in workforce skill sets from manual network operations to software programming and DevOps.

Real-world, AI-driven use cases

Nokia has a great deal of experience and best practices to draw on with regard to operationalizing ML. It typically increases opex efficiency, customer loyalty, upsell and cross-sell opportunities and data monetisation. It also decreases customer churn. Here some examples:

- Acceleration of response and rectification of apps issues based on customer impact
- Automated monitoring of key service impacting KPIs for individual VIP customers with automated alerts
- Reduced top failures degrading the service and customer experience
- Automated SLA monitoring of key service impacting KPIs for enterprise customers with automated alerts
- Insights on the customer with low CEI due to network and service quality, care and billing/charging issues
- Predictions on which customers are more likely to accept the offer and when
- Target campaigns with machine-learning based clustering and profiling to improve hit rate, service adoption and revenue growth

Conclusion

Customer experience is now the yardstick by which most global brands measure themselves. Driven principally by the methods and success of digital e-commerce and web-scale brands, the customer experience is now expected to be personalized, omni-channel and holistic. This is great news for consumers and business customers but it is driving all businesses, including CSPs, to change the way they operate.
It isn’t as simple as adopting digital interfaces such as smartphone apps and chat bots to service your customers. It is about shifting your entire organization to focus on the customer experience. You need to become customer-obsessed, data-driven and build new KPIs into your performance management systems to ensure that every part of your organization is working closely with others to ensure that the customer ‘feels the love’ from every part of your business. New analytics and indexes, such as the Customer Experience Index (CEI) are needed to supplement Net Promoter Scores (NPS) and help you understand why customers become dissatisfied and what you can do to make them happier.

Being able to flexibly and swiftly model, react and predict experiences at every touch point of the customer journey - mobile & fixed customers, payment, machine, care, etc - is the key for future success.

Figure 7: Happy customers make for a happy business

The lower the churn, the higher the EBITDA

All of this relies on making the most of all the data your business collects on customers. To make that operationally feasible requires artificial intelligence (AI) and machine-learning (ML) software that can arrive at actionable insights, including those actions that have the highest probability of meeting your objectives (next best action or NBA). This isn’t science fiction, there are any number of real world use cases in both the telecom and other sectors of the economy. The key is to transform your business, putting the customer experience at the center of everything you do.