

Moving Beyond NPS

Customer experience automating mobile network churn prediction

Customer Experience Management (CEM) has become a must-have for MNOs and MVNOs, assessing customer satisfaction by calculating the Net Promoter Score (NPS) from customer survey responses. This white paper proposes a new approach, using key quality indicators that characterize the real-life subscriber experience on the network, cross-correlated with NPS, driving automated prediction of churn and promising to convert Detractors into Promoters

Over the past few years, Customer Experience Management (CEM) has become a multi-billion dollar business. Customer experience (CX) stakeholders seek to correlate and analyze data from as many sources as possible in order to produce a quantitative measure of what is, in reality, a qualitative attribute—a customer’s perception of how good their product or service is. Mobile network operators (MNO) and virtual MNOs (MVNO) are no exception. The objective is to produce complex reports and graphic visualizations of ‘customer journeys’ or ‘customer maps’ that give insights into where service providers are satisfying their customers, and which aspects could be improved to maximize profits in the future.

In this white paper we assess the effectiveness of existing CEM systems for mobile networks, and propose a new approach that takes into account precise quantitative metrics that characterize the real-life subscriber experience on the network. An automated prediction system for customer satisfaction is introduced.

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How complete is the data?

The mobile network infrastructure represents the MNO’s most valuable asset as well as its largest investment, and it is the most influential shaper of the customer experience. It therefore makes no sense that this is the least-measured and least-benchmarked part of the customer journey. Call center activity, billing queries, retail outlet performance and handset usability and reliability are constantly reviewed, surveyed and analyzed, but in reality these are secondary to the ability of the network to meet subscriber expectations for voice and data call fulfilment.

A standard measure of customer satisfaction across many business-to-consumer (B2C) industries is the Net Promoter Score (NPS), an index calculated from customer responses to a standard telephone or online questionnaire, as described in the sidebar. Most people will be familiar with these—they often end with the question, “On a scale of 1 to 10, how likely would you be to recommend X to a friend or colleague?” After such a survey, CEM teams within an MNO would then look at the network KPIs that have been experienced by each customer, and which might have influenced the survey response, and correlate these with the score.

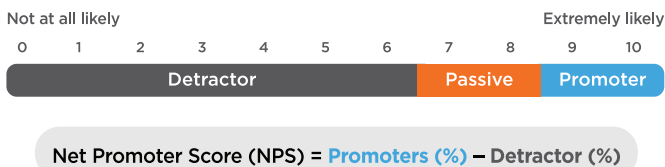


Figure 1: Calculating NPS from customer satisfaction survey results

Most MNOs have built their CEM systems, and continue to implement and modify their business processes, based around these ‘soft’ metrics. The really important data on negative subscriber experiences—such as low quality voice calls, slow video streaming, geographical location of problems, frequent dropped connections (particularly on high speed trains and roads), handsets that are incompatible with particular network services—frequently never show up on current CEM systems. If customers are unable to describe these problems in detail, or to identify accurately how and when they occur, then no action can be taken and the customer may become just another churn statistic that even smart churn prediction systems may have overlooked. In this case the NPS process is being improperly applied—the closed loop is too shallow because the fundamental pain points that drive the

NPS are not being addressed.

It is long overdue for the whole process of correlating Net Promoter Score data with real key network quality indicators to be fully automated. Such a technology could make the ideal of automatic churn prediction become a reality.

Proactive care or reactive problem solving?

In the absence of automated collection of network experience metrics, MNOs have resorted to trouble data from tools in the Radio Access Network (RAN) to reconstruct calls and data session problems. This approach can be effective as a remedy for individual customer problems, but it cannot be regarded as a systematic technique for implementing a CEM system. It is impractical due to operational and cost constraints to use RAN parameters as a routine data source to continuously feeds CEM systems. Consequently, the failure of true network experience Key Performance Indicators (KPI) to be integrated into CEM systems is a consistent source of concern for mobile CEM stakeholders.

What if we could prove a scientific correlation between a specific network experience parameter and NPS, and if we could even determine which experience parameters correlate most strongly with negative survey scores? This would be a game-changer, and the catalyst for proactive customer care to take over from just using a reactive approach. If an MNO could identify ahead of time which subscribers were likely to become Detractors, then they could take remedial action before that attitude became fully developed, and turn Detractors into Promoters.

What is NPS?

Respondents to the main survey question are classified as either Promoters (with a score of 9 - 10) who are loyal to the brand and will refer others, Passives (with a score of 7 - 8), and Detractors (score 0 - 6) who are dissatisfied customers who are likely to churn, and can also damage the brand by speshooting logged complaints. This reactive approach uses parameters such as probes and treading negative sentiments. The NPS is calculated by subtracting the percentage of Detractors from the percentage of Promoters, giving a score that can range from a low of -100 to a high of +100. NPS is intended to be used as part of a closed-loop system, where actionable insights can feed back into improving the score. A related figure of merit is the average satisfaction score, which represents the arithmetic mean of the 1 - 10 score.

Subscriber experience insight

Call Data Records (CDR) from a Tier 1 European operator have been monitored and analyzed, and these results have been cross-referenced with the NPS and satisfaction rating responses from those same subscribers. The performance against various KPIs can be viewed by the operator in real time on a subscriber experience dashboard. The results demonstrate an astonishingly close correlation with the customer satisfaction scores. Figure 2 shows the significance of key quality indicators in relation to NPS using the Spearman correlation, where a value of more than 0.1 is considered statistically significant. KQIs marked in dark gray prove to be strongly correlated to the NPS Detractors.

Despite this apparent strong correlation, there are several reasons to believe that the CDR-derived KPIs are in fact a more reliable indicator of customer experience than the more subjective satisfaction scores and NPS data. These include the following:

- As with any survey, NPS is based on a small sample rather than 100% coverage of the subscriber base. Although this does not affect its statistical viability, it has limited ability to help marketers in assessing individual customer satisfaction and in building customer satisfaction maps for the full subscriber base
- The answers can often be skewed by a recent one-time event. Even when these may not be directly related to network performance, the customer may link the experience and negative emotions in their answers
- Customer satisfaction surveys can only provide a snapshot at a single point in time. The validity of the results may be short-lived because of the constantly-changing dynamics of the network: more advanced network technologies, new buildings or street furniture causing an obstruction in network coverage, or disruptive new mobile device models arriving on the market. CX needs to be monitored on a continual basis, and NPS surveys were not designed for that purpose

The data presented in Figure 2 represents the first time that standard KPIs such as call drop rate and data disconnection rate have been correlated in real time against whether individual subscribers are Promoters or Detractors. There are also unique, non-standard KPIs such as poor call quality caused by interference or one-way audio, and the way the network uses overlaid 2G/3G/4G technologies, which can be measured and further analyzed to provide deep customer insight.

Having established a clear scientific correlation

between all these KPIs and the individual satisfaction survey rates, the logical next step is to offer the MNO with a tool for monitoring 24/7 the experience individual subscribers are seeing. This will allow the operator to take continuous action to improve the relevant indicators, and thus to mitigate the causes of the bad subscriber experience before it can lower their satisfaction score.

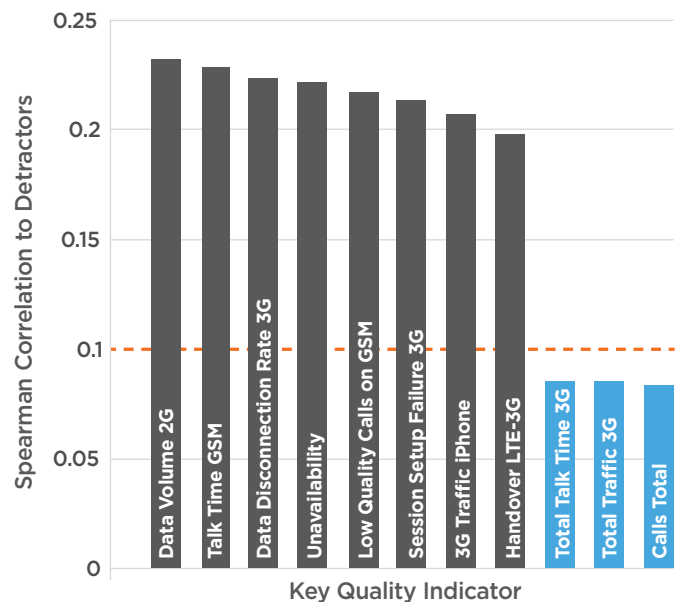


Figure 2: Correlation of network quality indicators with customer satisfaction rating

Closing the CX loop

Monitoring the performance of the network continuously using CX insights derived from CDRs can uncover previously invisible issues—for example a whole group of subscribers who are being forced to use GPRS, EDGE or other legacy 2G technology for data—when surveys may clearly show that these subscribers are scoring the operator negatively on satisfaction surveys but not provide the reason. RF optimization teams can then use the system data to detect 3G or 4G cell collocation and steer these subscribers onto the more advanced technology networks to improve their data session experiences.

Another application is that marketing teams can investigate the handset types that dominate among dissatisfied subscribers and target them for handset upgrades.

Results of these remedial actions will loop back seamlessly into the CX ecosystem, because the entire subscriber base is being monitored on a daily basis. When improved experience trends become apparent, the same remedies can be applied to other market segments to improve the overall CX, and thereby improve NPS.

Periodic surveys of NPS can help to calibrate the whole process back to the KPIs, and this provides the MNO with a comprehensive picture of how successful their CEM efforts are, as well as identifying where the technical teams need to focus their efforts for the future.

Closing the CX loop using deep network analytics based on real-life subscriber experience data is the only way to ensure that the root causes of low NPS scores—the technical issues that degrade network performance for individual subscribers—are effectively addressed, and Detractors are rapidly converted to Promoters.

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