Whitepaper:

Optimizing the CSP Portfolio of Service Plans and Loyalty Offers with the Customer Experience Score

Executive summary

An optimized Service Plan is such that the customer is receiving the right value for the price they are paying, and the Communication Service Provider (CSP) is receiving the most amount of Revenue, and achieving the highest margin over the course of the Customer Lifecycle. The challenge is how does the Product Manager know that their Service Plans are optimized for the intended segment of customers? Furthermore, how does the Loyalty Marketing Manager know when a customer needs an offer to optimize their perceived value and prevent Churn, and even more difficult to know is what the offer needs to be in order to optimize the value to the CSP so that ARPU is not leaked.

Therefore measurement and optimization of Customer Experience, defined as the sum of all of the positive and negative influences over the customer's perceived value of their Service Plan, is an increasingly important task for operators. In this paper the Customer Experience Score (CE Score) is defined as a combined measure of Financial, Service, and Usage Experiences. This measure is a strong predictor of Churn, and quantifies the Revenue at risk when a customer has options to switch to another Service Plan in order to align their cost with their perceived value.

The CE Score can provide critical insight for operators working to enhance their offer portfolio and manage the customer experience in a time of fierce competition, and complex products with lots of flat priced and Quality-of-Service QoS-dependent components (e.g. premium pricing for high data connection speed).

Introduction

Since the late 90s, mobile operators have had to invest tremendously in their networks. As soon as the race to 3G ended, the race to LTE began. Monetizing this massive and sustained capital investment has been critical, and focused on capturing increasing data revenues, and preserving voice revenues. However – with smartphone penetration growing everywhere in the world – the operators are facing new challenges.

1. Network capacity at peak times struggles to keep up with demand. Consider the last time you tried to send a photo of you and your friends at a concert or sporting event. Did you have problems sending that photo, or posting it on a social network? Furthermore, with customer clouds moving between work, home and leisure, with varying connections of Wi-Fi, LTE, 3G and EDGE, consistent quality of service cannot be guaranteed by investment alone.

2. Connected customers are informed customers because they share their experiences through social networks and amplify both the positive and the negative impressions they have of the service. Therefore, Product Management and Customer Experience decisions for a segment, or an individual can cause significant impact to Brand, Revenue and Churn.

Quantifying the customer experience for a segment

Given the impact Customer Experience has on Revenue and Churn, how does one begin to identify, measure, and quantify it? Clintworld, with years of telecom billing and usage analysis, has devised a methodology to do just that. First, they divide Customer Experience into three components:

- **Financial Experience:** The positive or negative perception the customer has of the value they receive from their Service Plan relative to the potential savings they may realize should they switch to another.
A 2010 study by the US Federal Communications Commission (FCC) found that 1 out of every 6 mobile device users incurred bill shock indicating that it is not uncommon for customers to pay more than they expected, thus putting them in a position to seek out alternative Service Plans with higher potential savings.

- **Usage Experience:** Positive or Negative events relating to Network Coverage (associated with call connect, and voice quality), and Quality of Service (most often related to data download/upload speed) contribute to the Usage Experience for a customer.

- **Service Experience:** Service Experience events typically occur when a customer is interacting directly with the CSP (e.g. via Customer Care, Retail Stores, Online Shopping, or Enterprise Sales Rep). In this context, negative experiences tend to be amplified. At the same time, when it comes to troubleshooting mobile phone service, most customers go to their CSP first. Apple and Microsoft are making inroads into developing that relationship with the customer via their stores. The OEMs and Google have not sought out this level of experience.

Optimization of the customer experience categories will provide operators with a competitive advantage in the marketplace.

However, Marketing is not charged with optimizing Usage and Service Experiences. Marketing can neither add more towers to the network, nor upgrade the IVR. Marketing is responsible for creating a portfolio of Service Plans and Loyalty Offers optimized to drive adoption, retention, and ARPU maximization. It is no longer enough to simply create a pricing model based on usage alone. Marketing needs to be able to factor in Usage and Service Experiences so that the price of the Service Plan equals the total perceived value of the Customer Experience. The point at which Customer Experience drives churn is what Clintworld calls the CE Score (Customer Experience Score). They have devised a method of quantifying the impact of Customer Experience. Leveraging this capability, Clintview is a predictive analytics engine designed specifically to help CSPs optimize their portfolio of Offers, for any given segment.
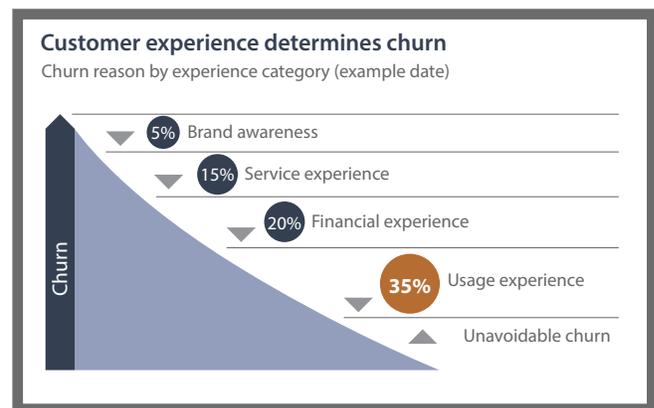

Customer experience determines churn
Churn reason by experience category (example date)

- 5% Brand awareness
- 15% Service experience
- 20% Financial experience
- 35% Usage experience
- Unavoidable churn

Fig. 1: Breakdown of churn by customer experience category.

High level solution

Clintview can incorporate all Customer Experience events and Service Plans into a simulation. The simulation will compute a CE Score for any given segment, relative to all Service Plans in the market. As a result, the CE Score provides a deeper level of insight than the generally finance-based analytics for campaign marketing, churn and product development. Clintview can incorporate all Customer Experience events and Service Plans into a simulation. The simulation will compute a CE Score for the any given segment, relative to all Service Plans in the market. As a result, the CE Score provides a deeper level of insight than the generally finance-based analytics for campaign marketing, churn and product development. In order to generate a CE Score for a segment, you first need to understand how CE events have impacted revenue and churn in the past. CE Scores are relevant to a specific segment, at a specific operator. While industry surveys

Combining for customer experience score
Usage experience cumulated for all market products

This product has lower service quality for inbound calls

This competitor product throttles data connections

This operator only provides low bandwidth in some of the regions the calls were made

Service
Usage
Financial

Customer A

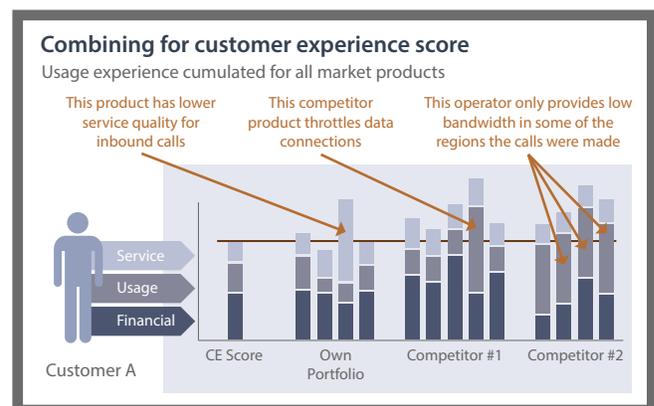CE Score | Own Portfolio | Competitor #1 | Competitor #2

Fig. 2: Clintview adopts both segments of many or segments of one.

on churn will often aggregate results into one large market segment, we know that the margin of error is much higher when calculated in this manner because operators may target or cater to different niches within a population of a survey. Clintview, takes input from multiple B/OSS nodes, primarily from the data warehouse depending on how much data it can provide. Once the CE Score is determined for a segment, then Clintview can quantify the amount subscribers at risk, and their impact to ARPU. This quantification can happen for a segment of many, or a segment of one, as we see above.

Solution details

Clintview started by focusing on the Financial Experience. Operator billing data is ingested from the data warehouse into the Clintview Simulation Engine for pricing and churn analysis. The Service Plans of the CSP can be simulated against the entire market portfolio of Service Plans, customer by customer, or segment by segment, showing potential financial impact of any Service Plan change the customer could make. The chart below shows what happens to a Customer's potential spend if they change Service Plans. This is reporting, and forecasting. However, it does not show the propensity to actually change Service Plans.
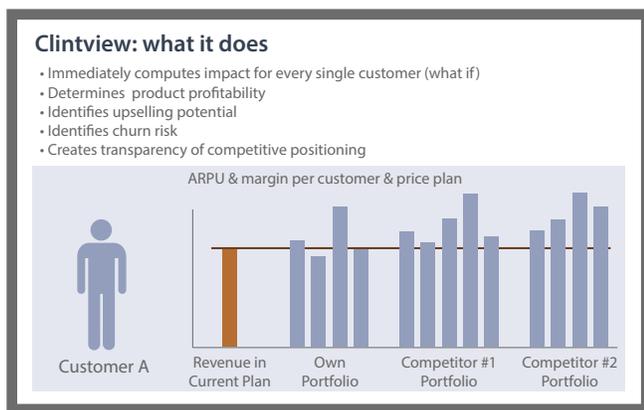

Fig. 3: Predicted cost customer by customer for all products in the market.
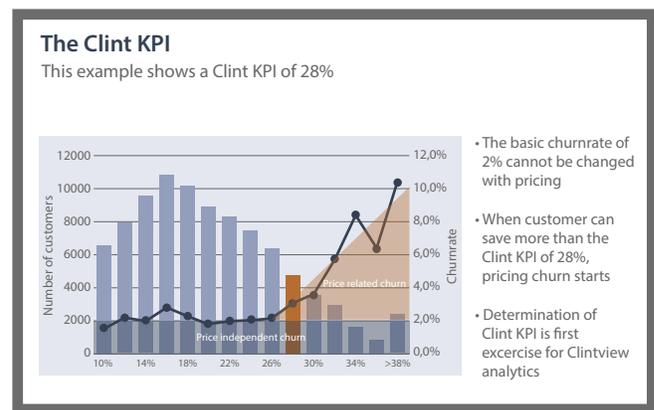

Fig. 4: Churn rate relative to saving potential with competition.

By adding billing history across a segment or segments of users, Clintview can calculate the potential price dependent churn rate for every Service Plan in the portfolio, against every Service Plan in the market. Results will show a foundation of price independent churn and the inflection point where price dependent churn begins.

One noteworthy finding of this Service Plan analysis is a recurring pattern that Clintworld has deemed the ClintKPI. This is the percentage of savings at which price becomes a critical factor of churn. This KPI enables operators to know at what amount savings potential becomes threatening. Further simulations from this point enable operators to determine how to extend this critical boundary.

With the Financial Experience as the foundation, now Clintview can layer in Usage Experience and it's impact on churn and ARPU. Usage Experience events are not universally identifiable, depending on the network systems in place. But generally speaking, here are some examples of events that contribute to Usage Experience.

• Dropped Calls and Soft Drops
• Failed Data Connections
• Throttled Data Connections
• Call Origin Regional Information
• SMS Failures

These events all have a negative impact on Customer Experience, yet they need to be balanced against the events that create a positive experience e.g. fast data connections. Note, many of these events can be influenced by the Service Plan (e.g. Dropped calls are more likely to drive a call to Customer Care when the customer is charged a call set-up fee). Thresholds for throttling data connection speeds can all be subject to the overall pricing scheme that balances the supply of network resources against the growing demand of usage.

Ensuring that the analytics engine has the data it needs to calculate a CE Score is critical. While most Usage Events can be found in the data warehouse, there are many Service Events, and Usage Metadata that are not. A good example of Usage Metadata is competitors' network speeds for a given location. This enables the CSP to know what data speeds would

have been realized for any given Usage Event. Imagine a loyal customer who has just moved to a new home where the competition has a stronger network. Rather than wait for the customer to call with a complaint, the CSP could offer a discounted microcell as a housewarming gift.

Understanding the algorithm is important. First we will build upon the ClintKPI which has been used to measure the churn and revenue risk associated with Financial Experience. To the ClintKPI, we will add Usage Experience.

The Customer Experience (CE) for old product (POLD) will change as follows when switching to new product PNEW:

CE (POLD) = Financial Experience (POLD) + Usage Experience (POLD)

CE (PNEW) = Financial Experience (PNEW) + Usage Experience (PNEW)

Computation of all potential Service Plans will lead to a modified Fig 3 (see above) with Customer Experience improvement potentials (IP) for all changes.

IP (Product Change to PNEW) = CE(PNEW)-CE(POLD)

Example for data modification
Data access speed of networks combines for analytics

Destination Zone Name	Own Network	Competitor #1 Network	Competitor #2 Network	Competitor #3 Network
Data national detail zone #1	4G	4G	4G	4G
Data national detail zone #2	4G	4G	4G	3G
Data national detail zone #3	4G	4G	4G	Low
Data national detail zone #4	4G	4G	3G	4G
Data national detail zone #5	4G	4G	3G	3G
Data national detail zone #6	4G	4G	3G	Low
Data national detail zone #7	4G	4G	Low	4G
Data national detail zone #8	4G	4G	Low	3G
Data national detail zone #9	4G	4G	Low	Low
Data national detail zone #10	4G	3G	4G	4G
Data national detail zone #11	4G	3G	4G	3G
...	...	...	...	...
Data national detail zone #81	Low	Low	Low	Low

Fig. 5: One Billing Destination "Data National" is divided into 81 Analytical Zones.

Finalizing the CE score will require Service Experience events, which can be pulled from customer service data. Some examples include:
• Customer service waiting times
• Customer service handling times
• Customer satisfaction scores of the service handling

Service Experience can measure the impact that a Priority Queue with Specialized Reps can have on retention. When adding this factor to Usage and Financial experience Clintview will have a measurable view of the Customer Experience.

Bear in mind that this data is most often fully available in data warehouses and so integration into the CE Score will be straightforward.

CE (POLD) = Financial Experience (POLD) + Usage Experience (POLD) + Service Experience (POLD)

CE (PNEW) = Financial Experience (PNEW) + Usage Experience (PNEW) + Service Experience (PNEW)

Business benefits

The analytics of the CE Score will be similar to a competitive analysis. There is a range of savings potential the customers can achieve that is not critical for the operator to address. The CE Score provides insight into this value, and ensures the Offer Portfolio is optimized accordingly.

The CE Score will be the decisive benchmark for product management, campaigning and churn prediction. It allows for informed and rapid decision-making in all those key areas of a CSP.

Because the CE Score incorporates all aspects of the Customer Experience, there is no need to "manually" consider the non-financial impacts of product differentiation. This leads to faster time to market and more consistent decision-making. It can be assumed that CSPs applying CE Score throughout the Customer Lifecycle will significantly reduce pricing leakage.

Optimization of loyalty offerings

• When customer can improve their customer experience (CF) by more than 18%, CE churn kicks in

• Customer experience independent churn is unavoidable

Fig. 6: CE improvement potential and churn.

Summary

CSPs' Marketing teams understand that they need to know how their customer segments perceive the Financial Experience of their Service Plan and Offers relative to those of the competition. To do this, a comparative analysis on price alone is not enough. They also need to be able to measure and quantify the value of Usage Experience and Service Experience on the customer's perception of the value they receive and the impact this has on propensity to churn. CSPs that optimize their Offer Portfolio by considering all aspects of Customer Experience (i.e. Financial Experience, Usage Experience, and Service Experience), and simulating Offer changes to optimize their value to both the consumer and themselves, will be best prepared for the post-price war era and will win the battle of attracting and retaining their most valuable customers.

Customer experience is highly determined by pricing of products and services

Pricing will impact a large set of customer experience events

Event Category	Analytical Item	Correlation with Pricing

Financial experience	• Save potential
	  • with own portfolio
	  • with competitors' portfolio
	• Bill complaints / errors
		These are classical subjects of pricing analytics

Usage experience	• Dropped calls • Soft call drops • Data service denials • Reduced bandwidth for data	All points either have • direct impact on price, or • could be improved changing products
Service experience	• Wait time for call centers • Service time for call centers	These points represent value for money. Service level may vary with pricing scheme/brand

Fig. 7: Pricing impacts on customer experience events.

Enriched network analytics
Clintview could leverage analytics of high volume network data

• Billing relevant data
• Lower data volume
• Unsufficient "analysis beyond financials"
• Fragmented customer experience

• Dropped calls and soft drops
• Failed data connections
• Throttled data connections
• Call origin regional information
• Customer service wait times
• Customer service handling times

Billing Data — Competitive Analysis
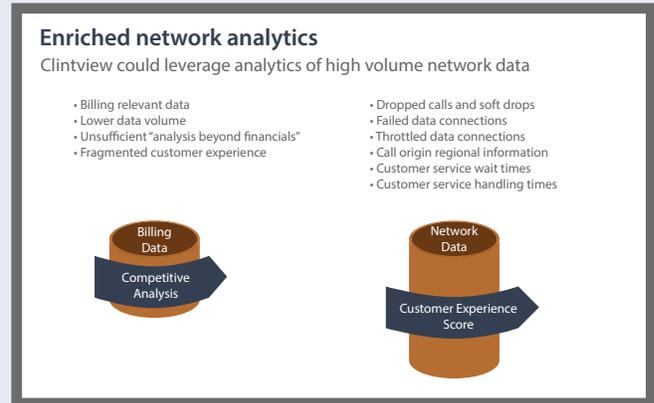
Network Data — Customer Experience Score

Fig. 8: Leverage Analytics of High Volume Network Data.

Conclusion: start by assessing revenue leakage and data integration costs now

To advance the analytics of a CSP to incorporate CE Scoring analysis, it is likely that more data needs to be made accessible. What may be in log files, error reports, and in customer records would ideally be found in a centralized data warehouse.

A full CE Score project will involve many shareholders within a CSP. Therefore an assessment of the current status of CE processes and available data should result in an estimate of leaked revenue due to pricing. Most often the inability to accurately predict the CE Score of a customer will result in considerable loss of revenue via reductions either on the Service Plan fees or handset price. Clintworld offers a short pricing leakage analysis that will estimate all aspects of pricing leakage in order to give a CSP insight into magnitude of the problem, and the potential business benefit of employing CE Score analytics.

CLINTWORLD