

Telecom, Media & High Tech Extranet

Crunch time: Using big data to boost telco marketing capabilities



No.21
RECALL

A publication of the Telecommunications,
Media, and Technology Practice



Crunch time: Using big data to boost telco marketing capabilities

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Breakthroughs in data storage and crunching power can transform the mountains of telco subscriber data into a marketing goldmine.

Telecommunications players have a valuable untapped asset in the torrents of information about customers that flow through their organizations. In the past, companies failed to structure this data in meaningful ways because of the unwieldy volumes and the lack of computing power or data coherence. Today, however, the business world has reached an inflection point that could make “big data” a potentially big deal for telcos interested in pursuing advanced marketing techniques.

Simultaneously, data storage costs have dropped, a wide set of products is offered, and computer-processing power has climbed to a point that

Specially developed algorithms enable Amazon to personalize online shopping to match customer interests

makes crunching much of the available information and initiating action at scale feasible. Resulting from these factors, major barriers to building workable analytical models have fallen – and leading com-

panies are already harnessing big data in valuable new ways. Search engines, for example, process vast amounts of data each day in pursuit of their aspirations to personalize advertising based on user search histories. Largely because of these skills, they can capture even more revenue per page than before. In a similar way, Amazon develops algorithms that enable it to personalize online shopping to match customer interests. As a consequence, it generates per-user revenues that are significantly higher than those of its competitors.

By taking steps down three proven paths, telcos can begin to cash in on the valuable information already flowing through their channels.

Create customer profiles

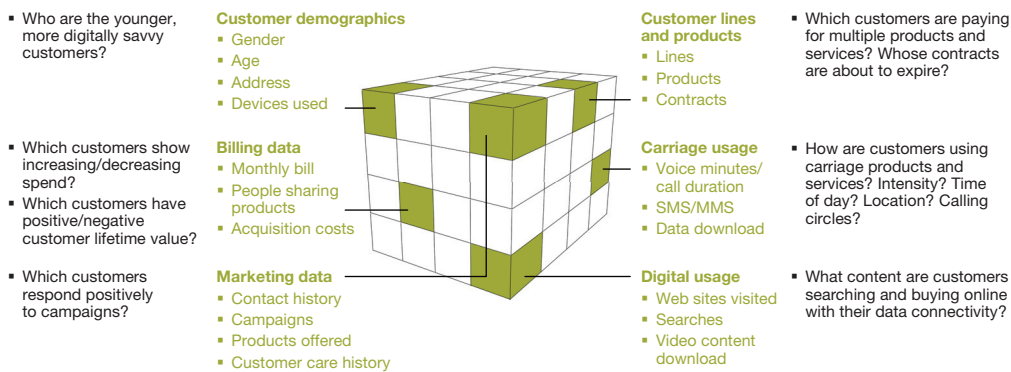
Telcos can use various databases to create robust customer profiles (Exhibit 1). Information available to most operators include customer usage behavior (such as voice, SMS, and data usage patterns along with video consumption and customer care history) and basic customer demographics (such as age, address, gender, and devices used). Marketing campaigns and loyalty programs can yield further insights into customer product and channel preferences as well as price sensitivity. Beyond core carriage services, telcos have the potential to capture online data like the number of visits to the telco’s Web site, visit duration, and number of searches so they can build a deeper understanding of how customers use data connectivity.

Building a 360-degree view of the customer involves integrating data across the telco organization. This entails considerable effort and costs, since data might have been captured and stored very differently across products or departments. Recent cloud applications significantly reduce the cost and time of building up such a complete perspective. They also afford telcos additional insights into how they should engage their customers. The highly detailed and segmented view of the customer base enables better customer service differentiation and personalized recommendations in cross-sell and up-sell campaigns. The more robust the customer profile, the more impact the analytical models will have.

Introduce advanced analytics and tools

To unlock the potential of datasets and improve performance across a wide range of levers, various analytics can be utilized. The following tools

Based on detailed customer profiles, telcos can differentiate customer service models and develop individualized offer recommendations



SOURCE: McKinsey

Exhibit 1

are particularly useful because they can be deployed at scale.

The next-product-to-buy toolkit. Telco product portfolios are getting more complex, as evidenced by the growing number of broadband speed offerings, mobile phone plans, content packages, etc. This creates problems for sales and care advisors when attempting to cross-sell. Traditional cross-sell rules that feed into the agent's "sales tip" screen become unreliable, often leading to cross-selling the product of the most vocal marketer.

More advanced tools that take into account full client behavior based on statistical techniques yield better results. Examples of statistical techniques currently being deployed are:

- **Retail next-product-to-buy (NPTB) predictive methodologies.** Based on market basket analysis and Bayesian rules, these compute the conditional probabilities of what a customer is likely to be most inclined to purchase next. Historical customer purchase patterns form the foundation for these calculations (see text box).

- **Neural networks.** Using non-linear statistical modeling and combining this with very simple "signal functions" in multilayer networks makes it possible to capture complex relationships between different input variables.

- **Random forests.** A fairly new method of data mining, this approach combines many decision trees to form a "forest" that delivers better predictive power than any single tree.

Marketing mix modeling (MMM). Historical information – such as sales data, marketing spend per channel, and GDP/inflation evolution – is the driver behind MMM. This tool quantifies the impact of marketing spend by channel on sales. By examining the correlation between sales volumes, revenues, or value produced and variables representing different marketing efforts then allowing for competitive forces and external factors, MMM makes it possible for telcos to optimize their marketing activities and media budgets. This can generate counterintuitive results. For one client with customer perception issues, for example, social media efforts showed negative impact.

From vitamins and vegetables to video and voice: Adapting one analytical tool of retail to telecoms

While the classic market basket analysis is typically used by retailers, telcos can also adapt retail NPTB algorithms to the specifics of the telecommunications industry. This is done by changing the definition of a market basket from a single visit to a collection of customer-specific data. The new basket can include sociodemographic and product portfolio information along with transactional behaviors and contact history data. As a result, the telco market basket analysis explicitly links customer conditions with product uptake.

An example of how this technique is applied is shown below. The NPTB engine is able to provide two useful lenses for marketing actions. First, for each individual customer, it is able to identify the top three to five products or services a particular customer is likely to buy, informing the sales and service agent what products to up-sell or cross-sell when that customer steps into the store or dials in to the customer call center. Second, for a particular product, the NPTB engine is able to help marketers determine the target segment of customers most likely to buy the product to address in their marketing campaign.

The NPTB recommendation engine ranks all relevant products down to the value-added service (VAS) level for each customer

Estimated take-up probability

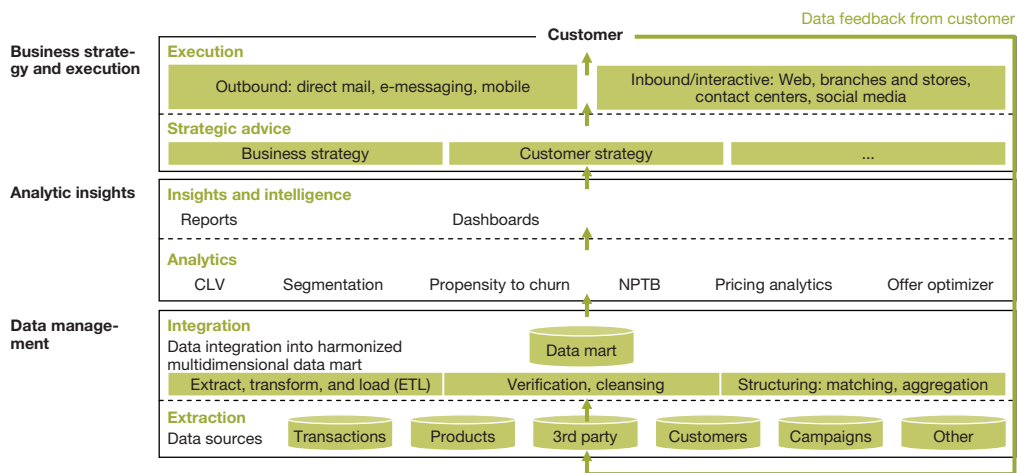
Customer	Basic mobile plan	iPhone mobile plan	Music VAS	AutoRoam	IPTV sports package	IPTV news package	Broadband
Customer 1	12%	Owns	39%	Owns	Owns	87%	Owns
Customer 2	Owns	89%	22%	10%	12%	64%	97%
Customer 3	15%	Owns	95%	21%	31%	32%	Owns

	Product	Probability		Customer	Probability	
Recommendation – customer view	Customer 1	IPTV news package	87%	Recommendation – music VAS	Customer 3	95%
	Customer 2	Broadband	97%		Customer 1	39%
	Customer 3	Music VAS	95%		Customer 2	22%

SOURCE: McKinsey

Within the telecoms industry, results from big data-driven CLM pilots have shown strong sales uplift potential across multiple sales channels. In one client example, the promotional e-mail sales conversion rate increased nearly 155 percent, outbound telesales jumped from 150 to over 200 percent, and outbound SMS sales conversions increased nearly 100 percent. But the greatest impact could be found in retail and inbound call centers, where performance jumped several levels.

The challenge often lies not in the analytics, but in their effective integration into organizational processes



SOURCE: McKinsey

Exhibit 2

Cost of acquisition simulation tools. One way to optimize price plans and promotion efforts is to model possible outcomes with a set of mathematical formulas. Simulation tools employ multiple sources of information, including customer acquisition data, customer lifetime value (CLV) models, and price elasticity analyses. These tools help to evaluate alternative pricing scenarios and promotions, compare expected gross customer acquisition performance and upgrade volumes, and forecast CLV creation and revenues.

One example involves the handset pricing simulator, which enables mobile operators to fine-tune their pricing strategies. Let's say a mobile network operator wanted to understand the impact that cutting the price of a leading smartphone by 33 percent would have on sales. The simulator employs pricing elasticity coefficients to predict total smartphone category volumes, including the effect the target smartphone's price reduction would have on other branded smartphones. Next, the simulator quantifies the change in CLV, and finally, the team ranks different scenarios and makes recommendations. The results might indicate that it

makes sense for the operator to reduce its subsidies on all high-end smartphones because pricing elasticity is low and, as a result, customers will be willing to pay more for the devices.

Set up a test lab and implementation plan

To sustain the impact of advanced CLM approaches like the ones described here, operators will find it helpful to first do some groundwork before fully launching their new analytics.

Lay the foundation. In particular, operators need to ensure that the customer profile data set remains relevant. McKinsey often deploys static data to the cloud as an initial "data mart," allowing a quick field launch and thereby reducing and postponing the need for more expensive dynamic solutions until the organization is ready for more sophisticated implementations. New variables that better track customer needs may need to be introduced. Furthermore, predictive models degrade over time, given shifts in consumer behavior. It is important that operators continuously review the effective-

ness of their analytical models and, where needed, refine or replace the algorithms.

Test using pilots. In order to avoid expensive mistakes that are uncovered only after implementation, operators also find it very useful to be able to rapidly test their analytical model's effectiveness prior to implementation in a low-risk but realistic environment. An operator may decide, for instance, to ring-fence 5 to 10 percent of its customer base to pilot a new predictive engine and check if significant improvements result in the test versus the control cells before rolling it out to the entire customer base. Insights from the pilot allow the operator to more credibly integrate the new engine into the organization's decision making processes and generate enthusiasm among multiple stakeholders.

Build up capacity. Finally, operators need to establish a plan to build ongoing capabilities/sophistication and support for the process. This includes training employees and implementing systems upgrades and organizational changes. Operators usually find that – rather than the number crunching involved – integrating advanced analytics into the mainstream of the organization is the

most challenging aspect of this approach (Exhibit 2). McKinsey's experience indicates that this type of initiative is best carried out gradually, attacking each lever sequentially – with the Sales and Marketing departments, not Analytics department, in the lead – while incrementally increasing the complexity of data and analytics in use.

It's not the technical aspect of analytics, it's integrating them into the heart of the organization that's most challenging



The rewards of launching an advanced CLM initiative can be substantial. Over half of all companies that conduct CLM projects achieve improvements in their EBITDA performance of 10 percent and more. Success, however, will require telco leaders to avoid falling into the trap of creating a “mathematics silo” in the organization. Instead, they should make sure that the insights gained from big data are integrated into the company's day-to-day operational decision making.



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