FROST & SULLIVAN

The Contact Center is Rich with Data—Why Add More?

Big Data's Place in Customer Service

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Contents

Executive Summary

Frost & Sullivan's Stratecast division sized the global Big Data and Analytics Market (BDA) at $41.18B in 2014, projected to grow to $67.89B by 2019. The Customer Service, Marketing and Sales Analytics segment was 18.8% of the 2014 total, or $7.3B. The Big Data and Analytics market is diverse, with hundreds of solution providers in varying segments, but until recently the practical application of Big Data within customer contact was marginal at best. This is now changing as analytics is the fastest growing segment of customer contact, and the key driver in transforming the way companies engage with customers. This research highlights the potential for Big Data Analytics in the transformation of customer service.

Introduction

Analytics is the hottest area of the contact center today, with customer service now the key factor in businesses' quest to attract and retain customers. And there are many analytics capabilities and metrics associated with the contact center – from basic metrics, such as first call resolution (FCR) or average handle time (AHT), to interaction analytics that show us not only customer history but let us follow customer journeys leading to a more holistic view of Customer Engagement.

Today's increasingly sophisticated analytics solutions include speech and text analytics, workforce optimization (WFO), back office workforce optimization (BOWFO), support interaction optimization (SIO), and Big Data. Broadly speaking, analytics is the tool that helps us determine our audience, prospects, and what our customers like and want. Most importantly, it helps resolve customer questions and issues that if left unresolved create unhappy former customers.

In essence, analytics is now at the center of Customer Contact, and customer adoption of analytics solutions is at an all time high. In fact, it is the fastest growing segment in Frost & Sullivan's market forecasts for both cloud and premise-based systems, with the market for hosted and cloud analytics forecast to grow at a CAGR of 17.9% from 2014 to 2019 and 6.2% for premise based systems. In 2014, the market grew 5.3% for contact center systems analytics, and 20.4% for all of hosted agent performance optimization, which includes quality monitoring and workforce management and analytics.

Business Intelligence vs. Big Data: Foundational Definitions

It's important to note that Big Data is a separate category from Business Intelligence (BI), a term that has been used since the late 1950s. In 1958, IBM researcher Hans Peter Luhn defined Business Intelligence as "The ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal." In essence, Business Intelligence was the pre-cursor to Big Data, a category Frost & Sullivan defines as "data sets that are too large and complex, or are growing and changing too quickly, for traditional databases and applications to manage—and new data structures that traditional databases cannot manage." By extension, Frost & Sullivan views analytics as referring to both general purpose statistical software and special purpose software applications for more specific analytic functions, both of which are derived from Big Data.

The term "Big Data Analytics" also needs to be differentiated from Business Intelligence in that BI solutions have been in existence for many years, deriving insights for analysis and reporting purposes, focusing on transforming historical data into useful patterns. In other words, BI solutions aren't able to process high-speed, unstructured data from online sources, or forecast and deliver predictive insights from large, varied, and rapidly changing data sets. This is where Big Data Analytics solutions enter the picture.

Big Data: Variety, Volume, Velocity, and Veracity

The traits that characterize Big Data and make it different than traditional forms of data are variety, volume, velocity, and veracity.

The variety of Big Data sources seems endless. Exhibit 1 shows a sampling of Big Data sources currently being harnessed to provide insights, but Big Data can come from anywhere, whether accessed in real-time or historically. It can be generated by weather trackers, medical devices, sensors in roads or machines, or from the millions of utterances inside recorded calls in a call center. And the volume of data this represents is staggering. For instance, take any large contact center and there can be millions of calls a year, multiplied by hundreds and thousands of utterances, each potentially containing a snippet of valuable information. Velocity is the speed or rate at which data arrives and is processed and understood. Finally, Veracity refers to how reliable and useful any particular data is.

Exhibit 1: Sources of Big Data

Broad Category	Specific Data Sources
Online	1. Log files: Web sites, search engines, applications 2. Rich media/multimedia: video, audio and images 3. Character large objects (CLOBs): text 4. Binary large objects (BLOB): images 5. Social media content 6. Social analytics
Transactional	7. Transaction data: retail 8. Transaction data: e-tail 9. Shopping/loyalty programs 10. Customer-partner-member-user data 11. Social network analysis (SNA) customer base social group data
Messaging and Communications	12. Text messaging: mobile 13. Text messaging: social/gaming[1] 14. E-mail (semi-structured) 15. XML files (semi-structured) 16. Corporate documents 17. Postal mail
Organizational	18. Key performance indicator (KPI) metrics 19. C-level 20. ERP 21. Supply chain 22. HR 23. Sales & marketing 24. Product development & management 25. CEM/call center/Helpdesk/CRM 26. Accounting & finance
Networks & Systems	27. Network monitoring and traffic including smartgrids 28. Network control center (NCC) 29. Operations-IT-Data Science 30. Event data
Other/External	31. Financial data including quotes/trades 32. Research and competitive intelligence 33. Weather and climate readings 34. Economic data

Source: Stratecast

[1] Two examples: the text messaging that is built into Facebook and Zynga's Words With Friends game.

Big Data—Why Now?

In Dimension Data's 2015 Global Contact Center Benchmarking report one key question was which three things respondents saw as shaping contact centers over the next five years. 52.8% of the 868 respondents said analytics. After all, and even though AHT and FCR are key performance indicators of contact center effectiveness, maintaining a competitive edge with an ever-changing consumer demands more. Companies know how essential it is to understand the context of customer behavior across multiple channels, and predict possible outcomes in order to shape the Customer Experience.

Big Data initiatives are underway at many organizations, within departments like IT and Centers of Excellence. These initiatives often arise from efforts to improve business processes (BI, ERP, and CRM), increase revenues (marketing and sales automation), reduce costs (supply chain, logistics, and distribution), incorporate social media, or extend data center/cloud capacities and capabilities. Such initiatives are born of a number of trends, including:

- The emergence of new data sources, including government records, social media, physical sensors, wearables, and the Internet of Things (IoT)
- New database technologies and inexpensive, cloud based repositories that have eliminated the storage constraints previously hampering efforts in Big Data
- More awareness of Big Data and amplified interest in applying it to customer service

The Potential

A shifting consumer landscape is fertile soil for the blossoming of Big Data. These modern consumers:

- Have been influenced by rapidly changing technology
- Are digitally savvy, always connected, and socially aware
- Prefer to research goods and services first and compare with peers before committing to a purchase
- Have a heightened ability to influence other customers' buying decisions
- Want quick issue resolution

Consider that consumers now live with mobile devices always at hand, using them for everything from communication to research and entertainment, and usage is growing exponentially. Frost & Sullivan forecasts global smartphone shipments to increase from 1.1 billion in 2014 to 2.0 billion in 2018. Smartphone shipments in North America are forecasted to increase from 251 million in 2014 to 410 million in 2018. And it's not just mobile devices. Frost & Sullivan is keeping careful watch on the impact that the Internet of Things (IoT) and what we call the "Connected World" – a world in which consumers use many different devices to experience compelling new services that integrate video, voice, and data services to provide access and ubiquitous connectivity anytime and anywhere – will have on consumers and customer support. We predict that connected devices will proliferate, influencing every aspect of life, with an average "digital native" expected to have at least ten connected devices at home, more than three enterprise-enabled work devices, and access to over 80 billion devices in their environment through the Internet of Things (IoT) by 2020. In effect, this increasingly complex world increases the need for Big Data Analytics that can help answer questions and resolve issues faster and better.

Support Interaction Optimization

One particularly interesting niche of Big Data Analytics that Frost & Sullivan defined in 2014 was a set of tools that address the complexity of technical support and integrate with a growing number of customer service-related applications and data repositories. These applications can help resolve customers' issues promptly and help retain those customers, many of whom may become enthusiastic brand advocates.

Support Interaction Optimization (SIO) is an emerging space encompassing advanced tools to support agents dealing with complex technical and remote support issues. These tools provide the right balance of live and self-service assistance, and also effectively guide agents through complex interactions. Key components of SIO solutions sets include:

- **Customer Web Self-Service.** Solutions that allow customers higher levels of customer self-service through search capabilities, knowledge databases, virtual assistant capabilities, and mobile apps. These solutions can contain social support through communities, provide specialized offer management, and solicit customer feedback.
- **Remote Support.** Solutions that enable customer support technicians to remotely access and control a customer's product to do remote diagnostics, web, mobile or video chat and collaboration with customers, among other features.
- **Guided Resolution.** Solutions that assist agents with workflow management, real-time decisioning, and collaboration with customers, along with "next best" offer capabilities.

- **Analytics.** Solutions that include interaction analytics (speech analytics, multi-channel customer interaction analytics, agent interaction analytics, customer journey analytics) as well as Big Data Analytics (product data, usage, benchmarks).
- **Performance Management.**

Clearly, SIO represents a growing opportunity for technical support, particularly device-specific technical support. Pinpointing issues and providing agents and self-service applications with real-time troubleshooting and resolution paths will allow companies to dramatically cut support costs and increase customer satisfaction. Frost & Sullivan forecasts the SIO market to grow from $1.3 billion in 2014 to $2.6 billion in 2020. And as the environment for technical support grows more complex, these types of tools will be augmented by overlaying additional sources of Big Data.

Speech and Text Analytics—Big Data before it was Big

Several forms of Big Data are already impacting customer outcomes through the contact center. Consider that there are billions of speech and text transactions that can be recorded, stored, and mined to gain insights into what customers want and need, but also how agents are handling those customers. Speech analytics is perhaps the richest source of Big Data in customer contact today. It can be used post call or in real-time to:

- Mine for missing information
- Gain competitive intelligence
- Understand churn threats
- Help with compliance
- Reduce fraud
- Improve agent performance
- Understand customer sentiment
- Understand customer-agent communication, such as talk-over or turn-taking
- Contribute to Back Office Optimization

Social Media Interactions

There also is a vast sea of information being generated from social networks. Never in customer service history have brands had such an opportunity to gain insight into customer sentiment. As such, more forward thinking companies are paying attention to all social networks, including Facebook, Google, LinkedIn, YouTube, Snapchat and others as a way to:

- Understand and utilize customers personal 'spheres of influence'
- Provide support that specifically caters to how an individual's needs and preferences change throughout the day
- Gain real-time information that can be used to cement customer loyalty
- Head off public relations fiascos that can result from negative customer experiences going viral

Pulling it All Together

The application of Big Data has become a driving force behind how companies consume, interpret, and use information. However, while speech, text and social media analytics all pull Big Data insights into the customer service equation to help further predict outcomes, personalize interactions, reduce churn, and improve the Customer Experience, additional streams of Big Data are being used to do a myriad of things including enhance forecasting models, contribute to product design, or determine consumer buying patterns. Companies also are overlaying traditional contact center data sources with information drawn from:

- Corporate documents
- Population census, geographic, psychographic, or demographic data
- Web interactions, such as clickstream data, web page hits, and search indices
- Physical sensors in machines, roads, smart meters, and other locations
- Customer data within vertical markets, such as financial or medical records

For example, financial institutions are using Big Data in a number of ways. By mining recorded calls and emails, and running Big Data Analytics against those, combined with what they already know about customer history, such as customer data, spending patterns, web browsing history, accounting data, and account performance history, these institutions can understand the reasons behind attrition and defection rates, predict financial and life events to craft more relevant offers for customers, and understand customer behaviors to help drive increased activity producing the following benefits:

- **Reduced Churn.** Companies can use speech analytics to detect the change in tone of a frustrated customer. For example, a customer who was promised a free gift for being a first time buyer might raise his voice to say, “This is the third time I’ve called because I haven’t gotten my free gift”. A Big Data solution using speech analytics would not only identify the terms “third” and “time” as negative indications of a potentially unhappy customer, but also the tonal change as another indicator of a potential customer churn incident. Combined with the customer’s record data and transaction history, this data can provide a personalized model of this consumer, their value as a customer and potential to churn. Further combining that information with the customer record that shows he is a new customer, and also connecting this with similar instances, provides visibility into failings of the third-party supplier of the free gifts for onboarding new customers.

- **Reduced Fraud.** Big Data can spot the outliers or strange occurrences in buying behavior that might indicate fraud. Tie this in with speech analytics that can also detect patterns that indicate fraudsters attempting to slip their schemes past agents, provides a powerful combination that crosses more than retail and financial services, but also can assist in other verticals such as fraud within healthcare and insurance.

- **Optimized Pricing.** Big Data Analytics can provide the competitive intelligence needed to price on the fly, according to supply and demand. For instance, looking at customer sentiment, inventory, and buying patterns can enable retail establishments to fine-tune pricing strategies, or telecom and cable providers can change product bundling offers based on competitive information and predictive analytics.

- **Increased Revenue.** Big Data Analytics can be applied to customer behavior to predict a customer’s penchant to buy. Combining historical data, location, and in-session behavior, along with product preferences gleaned from customers’ social media networks, and applying real-time analytics, can enable a business to increase Customer Engagement through location- or Web-based personalized offers. For example, a customer perusing a certain item on a website that adds the item to a shopping cart, but abandons it, can be pushed an email or push notification of an offer, as well as be shown what others within social networks with similar profiles have also purchased to motivate the customer to buy.

Use Cases

While businesses such as Communications Services Providers (CSPs) and large retailers have been using Big Data to gain more intelligence about the transactional and demographic sides of their customers, to do things such as hone supply chains and predict buying patterns based on previous purchases and web clicks, more companies are starting to realize the value that comes from combining the information found in their traditional data sources with the behavioral information found in customer interactions.

Retail

Most contact centers stop with the shopping cart and order. However, retail clickstream data can reveal how many times a customer or potential customer visited a certain page, or where in their journey they abandoned the shopping cart. Using Big Data Analytics a company can uncover the where and why a customer didn't complete a purchase. For example, combining clickstream and speech analytics might uncover customers abandoning the cart at the point of shipping charges due to a competitor offering free shipping during the holidays, enabling the company to proactively respond. Big Data Analytics also can reveal in-store patterns:

- The number of mobile devices that pass by a store, and number that enter
- The number of total shoppers who are in a store, both on average and at specific times
- The number of shoppers that visit more than once and how often they visit
- How much time shoppers spend per visit, and what do they do at the store
- Which purchases occur when a given mobile device passes through a store checkout

For online shoppers Big Data Analytics can reveal the:

- Number of visitors entering a site and from which referring pages
- Amount of traffic the Web site is receiving
- Web site's busy and quiet hours
- Number of unique site visitors and frequency of their visits
- Amount of time spent and level of engagement
- Number of conversions the site is achieving, with which and what types of visitors

Telecom

Telecom provides another example of the benefits of bringing in Big Data sources. Calls for millions of subscribers can be dynamically routed (based on understanding what might be happening to quality of service or experience) through the use of real-time analytics that examine the quality of calls and data sessions (across location, time and type of service, including signal strength, cell handovers and dropped calls), usage patterns, and the location of the caller. This type of data can be used to optimize networks, but also offer different levels of service per segmentation of those subscribers.

Contact Center Specific Benefits

Across verticals adding Big Data can impact specific contact functions.

Dynamic IVR and Routing

The addition of data sources from outside the contact center, such as geographic or demographic data, can enable companies to dynamically change IVR prompts and routing. For instance, the combination of supply chain information and weather data could be used to understand shortages in stock and timing of delivery. During the holidays, for example, if a popular item is low in stock locally and weather is impacting the speed of shipping it from a distance, dynamically changing scripts in the IVR to offer alternatives or upsell other items can act as incentive to faster delivery.

Dynamic Script Generation

The utilities space provides another example of dynamically generated scripts. The advent of smart meters and smart grids has opened the door to tailoring pricing and offers in customer service. While smart meter data informs consumers about electricity usage, it also provides information to the service provider about usage, power fluctuations, and power outages, as well as an individual customer's usage patterns. For example, are customers using at peak hours and would incentives change the behavior? Grid and meter information can be used to improve efficiency of electrical generation, but also arm customer service with the ability to dynamically change agent scripts to tailor offers to consumers based on their usage patterns.

Proactive Customer Care

The travel industry provides a nice example of the potential for using Big Data to improve the Customer Experience. Big Data is being used behind the scenes to run simulations and crunch data to develop alternate routing scenarios in the case of weather disruptions or other delays. This can then be fed to more customer facing applications.

But the potential to use demographic, financial, or other forms of Big Data to hone customer profiles and apply predictive analytics to create targeted proactive customer care is another example of the promise Big Data holds. Not only can contextual data improve the Customer Experience, it also enables organizations to increase the frequency of customer interactions helping to further cement loyalty.

Machine Learning

Finally, another branch of Big Data Analytics, machine learning, is also being used to understand customers' penchants to buy, donate, or even pay debts. Machine learning has been used in the academic realm for decades to uncover patterns in previously processed data sets. Now it can be applied to increase engagement with customers through marketing efforts, but also within the confines of the contact center itself. Predictive lead scoring allows companies to identify characteristics of potential donors, such as demographics, and then sorts and scores them to create outbound dialing lists of those potential donors with the highest propensity to donate. Using this data can dramatically reduce outbound calls to people who wouldn't want those calls, and re-directing calls to better candidates. Also, applying machine learning to campaigns builds knowledge about the people being called at the beginning of the campaign; through the use of neural networks, machine learning learns as it goes, and then lets the company fine-tune methods as the campaign progresses based on outcomes.

Getting to the Finish Line

The overarching promise of all Big Data Analytics solutions is to enrich and streamline current business processes, including in the contact center. While it's true that the movement to deliver multichannel customer interaction and omnichannel service delivery is still fraught with data integration issues, it is not too early to think about what is next. The vision of what is possible with customer engagement has sown the seeds of thought as to what else can be achieved with the addition of new sources of data, while planning and executing on omnichannel strategic initiatives.

With the growing awareness and agreement that customer service is becoming a key to business differentiation it is a business imperative to mine information that can positively impact the way that companies service and support customers, fine-tune and strengthen relationships, and perhaps even delight and surprise customers. However, to do so means going outside of the confines of the traditional contact center to bring in other information that may already be part of the Big Data projects underway in many enterprises to gain insights into operational efficiencies, and increase business differentiation and competitiveness.

It is also imperative to keep in mind that the two share a critical component. To be effective, strategic plans for Big Data projects and omnichannel customer care both require an executive to champion strategic plans and gain cross organizational support for these efforts.

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Frost & Sullivan

331 E. Evelyn Ave., Suite 100

Mountain View, CA 94041

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