

Speech Analytics Made Simple (And useful ... and affordable...and even fun)

An OnviSource White Paper



Technology companies sometimes get a little too wrapped up in telling you how their products work rather than how you would benefit from them in the first place. Analytics is a great example. Have you heard these terms; Hidden Markov Models, Fourier transform, phonemes, neural networks, or cluster analysis? If so, you may have graduated with a degree in statistics or recently talked to a salesperson from a speech solution provider. Techno-jargon like this contributes to what we will call the “Mystique of Analytics.” As a contact center professional faced with problems to be solved, understanding the underlying technology of speech and data mining is about as useful as understanding how your watch works. You just need to know that it works, what it can do for you, and how much it costs.

In this paper we hope to demystify speech technology and turn the discussion toward pinpointing practical ways speech analytics can not only help you do your job better but shine the corporate spotlight more brightly on the contact center. But first we must go over the obligatory definition of terms. You won’t find these in any glossary or trade association handbook and no doubt some will argue their technical precision but the object is to describe the technologies in terms of *what they can do for you* rather than *how they do it*.

Speech Analytics - Tools that rapidly sift through stores of “unstructured” data (human voice interactions) to identify probable causes of failures or successes and identify relationships that would not otherwise be apparent

Data Analytics – Tools that rapidly sift through stores of “structured” data (text and numbers) to identify probable causes of failures or successes and identify relationships that would not otherwise be apparent

In terms of technology adoption data analytics is way ahead of speech analytics. Speech analytics is just starting to hit its stride with most of the sales activity directed to contact centers. Although market adoption has been slower than vendors would like, the good news is that the technologies behind speech are maturing and costs are coming down considerably.

Both voice and data analytics individually can contribute to improved contact center performance. However, the real advantage is derived when they are tightly interwoven with other common WFO applications. Let’s start with a couple of examples.

Hypothetical Example One – “Leap Year”

A policyholder has an accident on February 29th and calls it in to customer service. Her policy was due to expire on March 1st. The customer service representative enters February 29th as the date of the accident but it comes up March 1st on her claims software. She does not notice the error. The claims department denies the claim on the basis that the policy had expired. The policyholder calls to complain that the accident actually occurred on a day when the policy was in force. She was very adamant.

This particular carrier recorded all interactions and had recently invested in speech and data analytics. The first step was to confirm the customer’s contention that the accident was indeed reported on February 29th. To expedite the search process, contact center management commanded the recorder to search for all calls handled by this particular agent on February 29th where the policyholder’s name was mentioned.

Almost instantly, they isolated the precise call and confirmed that the call did occur on February 29th. They also looked at the claims form that was associated with the retrieved call. Sure enough, March 1st appeared as the date the accident happened. Through speech analytics a problem in the claims software was identified. The software failed to account for the fact that this was a leap year. It just skipped from February 28th to March 1st. A much bigger problem was brought to light. How many other claims that day were erroneously denied or policies erroneously cancelled?

To further investigate the scope of this error, the speech analytics tools were used to examine all 80,000 calls that occurred between February 28th and March 30th. Management provided some clues as to what phrases and words to use. The software created categories with similar meanings like “upset over cancellation,” “paid on time,” and “accident.” Now management understood the scope of the problem and was able to identify each individual policy holder whose claim had been mishandled and was able to sort things out before the situation escalated out of control.

Hypothetical Example Two – The Sloppy Ad agency

The Fresh Ideas Ad Agency was asked to help their banking client break into a new market. The bank opened three new branches in the community but was not bringing in enough new depositors. True to their namesake, the ad agency came up with a “fresh idea.” They urged the bank to launch a very aggressive promotion. The offer was that every new depositor would receive free checking, free bill pay, and a \$25.00 bonus deposit from the bank. The only condition was that the new depositor had to maintain a minimum balance of \$500. Unfortunately, when they ran the full-page newspaper ads, Fresh Ideas’ proofreader missed a typo. The copy read \$50, not \$500 as the minimum deposit. The day the ad ran the three branches were flooded with new depositors. When the new accounts clerks told prospective customers the minimum deposit was \$500, some grew very angry, even showing the ad, which clearly read \$50. Not knowing what else to do, the clerks advised the prospects to “call customer service.” As a result, volume at the contact center spiked dramatically. Customer Service Representatives had not yet heard about the problem and immediately brought the issue to the attention of their bosses who in turn notified senior management.

Alarmed, the top brass needed to understand how serious the problem was and asked the contact center manager to look into it. She used speech analytics to categorize calls both before and after the promotion. Key words and phrases were “promotion,” “minimum deposit,” and various words and phrases that implied “deception.” The analysis showed that call volume increased 10% and the proportion of calls related to the promotion made up 60% of the increase. Callers were angry. Since trust is paramount to the success of a bank, management decided to run a new ad with an embarrassing apology and advised the three new branches to go ahead and accept the \$50 deposits until the new ad came out. The “Fresh Ideas” agency is now looking for a fresh client.

These two examples illustrate the problem-solving power of voice analytics. In both the insurance company and the banking examples the issues could have been identified without analytics. However, it may have taken days of listening to recorded calls and searching manually through archived documents. In the meantime, the problems would have only festered, perhaps getting to the point of litigation and seriously frayed customer relations. Analytics got to the root of the problem in minutes, permitting quick and decisive action.

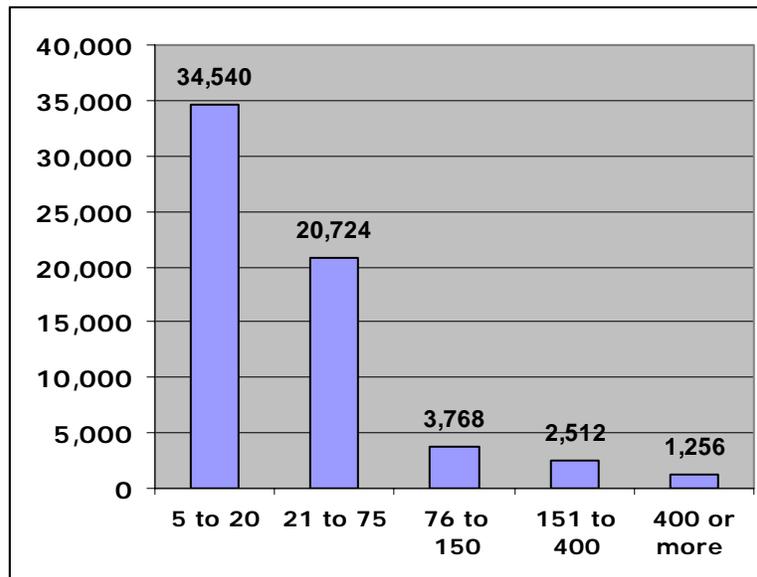
The examples also point to one of the major myths of analytics – that it is a highly sophisticated tool that may only come in handy for special situations but not the everyday operations of your contact center. As we will point out in this paper, analytics is not just for

solving specific problems. There are many everyday applications in coaching, training, evaluation, and compliance, and simply getting a more thorough understanding of what customer attitudes and behavior.

Making speech affordable

The fact that adoption rates have been below expectations has more to do with cost than the usefulness or maturity of the tool. Similar to many other new contact center applications, vendors initially target the very large contact centers with overly sophisticated solutions that yield high unit sales and hefty profit margins. At the high-end of the speech technology spectrum is Large-Vocabulary Continuous Speech Recognition (LVCSR). Powerful LVCSR speech engines can require banks of servers, extensive storage and months of preparation time in addition to the speech analytics software. The final tab may well be in the high six or low seven figures. This might be acceptable to some giant contact centers, but not feasible for centers under 400 seats, which make up 98% of contact centers.

Contact Centers by Agent Size USA (2008)



Source: The PELORUS Group

We estimate that there are less than 1300 contact centers in the USA and 3500 in the entire world with 400 or more agents. With this small pool of potential customers, LVCSR speech will never become mainstream.

The perfect solution would be tightly woven into related workforce optimization (WFO) applications like recording, evaluation, learning and coaching. It would be simple to use. OnviSource has created such a solution. It's called Explora and is an embedded feature of its OnviCenter Workforce Optimization and Automation software.

Benefits of Analytics to the Contact Center

OnviSource's view is that speech should be an integral element of any WFO suite of solutions, including any effective quality management system. It should support core activities like selecting calls for quality monitoring, agent evaluations, calibration, coaching, performance management and other routine functions. Additionally, speech analytics can be a very valuable tool for extracting strategic market intelligence. It should do this with a simple, intuitive user interface. It should not call for specially trained speech engineers to administer or require weeks or months of costly set up time loading dictionaries, grammars and tuning the system. Application examples include finding the causes of customer defections, improving customer satisfaction, evaluating the success of costly promotions, identifying competitor actions, assessing product quality, uncovering problems with customer policies or fulfillment logistics, and detecting possible liability exposures. C-level management is far more interested in these types of strategic insights than how the contact center is performing on detailed and routine KPI metrics.

When the price to add speech analytics is under \$300 per seat (rather than upwards of \$1,500), it becomes much easier for contact centers to build the financial justification for making the investment. The justification comes from the combined impact of more streamlined operations, faster problem solving, collection of market intelligence, and a more positive customer experience.

Let's start with the core management functions that comprise the basic blocking and tackling of the contact center.

Quality monitoring

The primary objective of quality monitoring is to improve the customer experience. It should not be intended to provide an accurate indication of individual agent performance. That would require randomly sampling nearly 350 calls per agent per month – a practical impossibility. Rather, it is preferable to search for coaching opportunities. In other words, look for the anomalies and outliers. The challenge of QM is identifying and evaluating “coachable” calls. All major recording systems allow supervisors to select calls based on call length, number of transfers, calling number, time on hold, and other filters. However, these are just proxies for what the supervisor really wants to find – calls where the agent/customer experience was either poor - signaling need for coaching and training, or exemplary - signaling an opportunity for praise and encouragement.

Call length may have little to do with agent performance. Maybe the caller had several questions, or had to search for an old invoice to discuss a payment issue, or maybe the agent went the extra mile to consult a subject matter expert. The number of transfers is not necessarily an indication of poor call handling skills. It could be that the caller made the wrong selection at the IVR and the agent was trying to forward the call to the correct department.

Speech analytics allows supervisors and QA specialists to hone in on calls that are more likely to warrant coaching attention. For example, one customer of OnviSource periodically conducts searches of all calls with the term “I apologize.” Why does the agent feel compelled to apologize? Does the company have a problem with its policies and practices? Does the agent lack the knowledge and training to answer the questions? Or are there some

agents that are just lacking in self-esteem and need some encouragement from their supervisors? Other search terms that could be helpful are “I’ve called before,” or “I don’t understand.” You can determine which search terms and phrases are most relevant for your environment.

Script adherence

Scripting is very important, particularly in outbound sales and collections environments. The Telemarketing Sales Rule, the Fair Debt Collections Practices Act, and other laws and regulations require certain mandatory disclosures. Only by adhering to the script can management be assured that agents are in compliance. Besides compliance, sales may suffer. In one example an outsourcer client of OnviSource discovered, through speech analytics, that only one of their agents consistently adhered to the prepared script. Not surprisingly, this same agent was the highest sales producer.

Calibration

Agent evaluation is both art and science. Supervisors will have “hard” data like ACD-generated KPI’s but the evaluation process must also consider “soft” skills, such as courtesy, accuracy, listening skills, call control, empathy, product knowledge and other subjective attributes. Agents will object if they are rated differently by different supervisors on the same attributes. Calibration sessions are intended to narrow the differences on how soft skills are defined, interpreted, and rated. Speech analytics allows management to search and retrieve calls where each of these soft skills was demonstrated, based on key words and phrases. For example, the speech engine could be directed to categorize all calls over a specified period of time into “buckets” that contain calls that exhibited each of the requisite soft skills. From each bucket the moderator of the scheduled calibration session would randomly select some number of these calls to collectively refine the criteria for what expressions and actions constitute good and poor performance on each soft skill.

Performance management

Contact centers rely heavily on ACD-produced KPI’s to evaluate individual and team performance. But do these KPI’s actually reflect the current missions of your contact center? A good example is average handle time (AHT). The time spent on an interaction will be less important when the primary goals are to sustain or increase revenues or to achieve customer satisfaction goals. With speech and data analytics fully integrated with your WFO suite, it is possible to create the unique metrics that best reflect your situation. Examples of “new” metrics include:

- *Sales leads generated*
- *Up-sell attempts*
- *First contact resolution*
- *Customer satisfaction scores*
- *Promotion response rates*
- *Customer saves*

The information to create metrics such as these can be extracted from your archived voice and data interactions provided you have a fully integrated analytics solution.

Agent evaluations

With a fully integrated solution where both speech and data analytics are embedded and directly linked to the evaluation tools, supervisors have a full 360° view of each customer

interaction. The subjectivity of evaluations is reduced, as sharpened calibration provides more consistency in rating soft skills. Other performance indicators like more meaningful KPI's, script adherence, data-entry accuracy, test scores, and past evaluations are readily available. As a result the evaluation process can be more closely aligned with the broader goals of the enterprise and agents will feel more confident that the process is fair, accurate, and consistent.

Coaching and learning

Categorization can bucket agent calls by various classifiers and trend these patterns over time. For example, you may detect that over time the average handle time for new customer applications is significantly longer than the norm for particular agents. Now the supervisor, working from her desktop, simply calls up a selection of “new applications” calls and listens carefully to how the interaction was handled. With this information, which can be shared with the agent, the supervisor can provide targeted coaching and learning to address a clearly identified deficiency.

Problem solving

In addition to the many ways analytics can contribute to the day-to-day activities of the contact center as demonstrated in the insurance company and banking examples, it can also be used to quickly get to the root cause of problems. For example, a large computer maker decides to move one of its tech support operations off-shore to save money. The company now has three domestic tech support sites in the US and one in India. They track customer satisfaction for each site. After six months they note a sharp decline in customer satisfaction for the India site, although all other metrics are very favorable. Management suspects there may be a problem with customers comprehending what the tech is saying because of language issues. They do an analysis of all interactions from the India location and find that 25% of the callers made statements like “I don’t understand,” or “Please repeat what you just said.”

That was a hypothetical example. Here is a real one.

Another one of OnviSource’s’ outsourcer customers was trying to persuade one of their clients to move the contracted operation from the outsourcer’s India site to its domestic operations. The cost would be higher and the client balked at the idea – until he saw some speech analytics data. The outsourcer had invested in the Explora analytics solution. When their client saw the proportion of calls that exhibited caller communications problems they decided on the spot that the cost savings could not be justified when compared with the potential loss of customers.

Revenue generation

According to a research study conducted by CSO Insights in 2007, 63% of inbound contact centers had both service and revenue goals or were in the process of transitioning to that model. In today’s highly competitive world every business function is expected to contain costs, contribute to revenue growth, or both. Inbound centers are asked to “up sell” callers to more profitable products. But are they actually doing it? Search of key words and phrases can give you the answer. In an article published in [Sales and Marketing Management](#) the author cited an example where speech analytics established that agents were taking advantage of up sell opportunities only 11% of the time.

Benefits of Analytics to the Enterprise

As the voice of the company, agents are uniquely positioned to strengthen or weaken brand loyalty and corporate image. However, enterprises have many constituents; customers, employees, vendors, lenders and investors.

By extending recording and analytics to other business functions, the broader enterprise can benefit from the application as well as the contact center. No other application has such broad utility as 100% recording paired with analytics. Increasingly, you will hear the message, “This call may be recorded...” when you call the main number of business. This opens the legal door to deploy recording and analytics for many common business situations.

Problem solving

Speech analytics can be very useful for getting to the heart of vexing problems. We discussed the two examples of the software glitch and the misleading ad. But what about problems you may not even be aware of? Management would be wise to periodically collect data on complaints. These can be sorted into various categories. Examples are quality problems, late deliveries, incorrect information on corporate web sites, billing errors, poor service at retail stores and others appropriate to your type of business. Consumers are your eyes on the ground. Everyday they provide valuable insights and they do it for free. Listening to this feedback can help your company solve problems faster and jumpstart the competition.

Transaction verification

Transactions don’t always occur in the contact center. Consider the purchasing department where every day buyers negotiate selling prices and terms with suppliers over the phone. These are typically followed up by email or fax but what if the follow-up documentation does not confirm the buyer’s recollection of what was actually negotiated? Speech analytics can quickly search for the specific interaction to verify the transaction. Additionally, in many firms individual managers have authority to place orders up to their approval limits. Similarly, individual sales managers may negotiate sales orders by phone, sometimes with no documentation. In each case, recorded voice and data interactions serve to verify transactions.

Compliance management

Contact center managers are keenly aware of their compliance responsibilities. But there are many other compliance requirements that address the broader enterprise such as the Sarbanes-Oxley Act, Health Insurance Portability and Accountability Act (HIPAA), and The Truth in Lending Act. These all have restrictions on how information is released and what disclosures are required.

The employment process is fertile ground for potential compliance violations. The Equal Employment Opportunity Commission (EEOC) is the federal agency responsible for enforcing the nation’s laws prohibiting employment discrimination. There are numerous grounds for discrimination including age, sex, impairment, marital status, race, and ten others. Even a seemingly innocent question such as “When did you graduate from college?”

can lead to discrimination charges. Recording all telephone interviews with potential candidates then searching for key words or phrases is a prudent compliance practice.

Employment screening

Human resource departments conduct pre-employment telephone interviews to screen qualified candidates. Does the interviewer cover all the key points required by management? Has the interviewer exhibited courtesy, professionalism, and knowledge of the position requirements? Full recording paired with speech analytics and evaluation software can bring the same level of performance management discipline to the human resources department as exists in the contact center.

Campaign evaluation

Marketing departments are always coming up with new promotional campaigns. These campaigns generate additional calls. Often, the caller specifically references the campaign. This is valuable information for the marketing department as an indicator of campaign effectiveness. Speech analytics can measure the frequency of specific mentions and even allow marketers to drill down to find out exactly what callers were saying.

Marketing research and analysis

U.S. businesses and organizations spend about \$8 billion annually on market research. The market research managers spending all this money may not even know that much of the information for which they were spending big dollars already exists in contact center archives. The problem is they can't get at it. Speech analytics opens the door to the treasure chest. If the question is "Why is our customer churn so high?", they can build a category around such terms as "cancel my account," "I've found a new service provider" and drill down to individual interactions to find out more precisely why the customer elected to go elsewhere. Analysts can hear the reason in the customer's voice. This is much more powerful than sterile statistical reports. Researchers have the data in minutes, not the weeks or months it would take to conduct a survey...and at no incremental cost.

Liability protection

A customer calls the contact center to request a warranty replacement of a recently purchased toaster. The agent asks why the caller wishes to replace the product. The caller replies that "the cord burned when I plugged it in." The agent judges that the condition is covered under warranty and dutifully collects the information to replace the toaster. The call is recorded. The quality assurance analyst reviews the call and notes on the agent evaluation form that the call was handled courteously and procedures were properly followed. But unbeknownst to anyone, that was the two-hundredth call they'd had about "burning cords." One day the CEO gets a call from an attorney seeking damages for the home that burned down and the injuries that resulted. The fire marshal traced the cause to their company's faulty toaster cord.

Because calls are not generally counted and categorized, potential quality issues that were reported may go unnoticed. Contact center managers should be vigilant about collecting information that may identify potential legal exposure. Conducting periodic analysis of key words and phrases is a good way to ward off potential risks and exposures.

OnviSource Solution

OnviSource has recently launched Explora speech and data analytics solutions. Explora is embedded with the OnviCord Workforce Optimization and Automation (WFO-A) solution suite. OnviCord provides full and selective recording, screen capture, agent evaluation, desktop automation, workforce management and now speech and data analytics. All the applications are tightly integrated and easily accessible from the interaction management dashboard. The result is an easy to use 360° view of agent and customer interactions. Analysis is performed automatically; and even triggers actionable knowledge that directs both agents and organizations to effectively manage critical areas of agent interactions. Analysis can occur as soon as OnviCord has stored the recording, in near real-time, typically seconds after the call has been completed.

OnviSource offers a free trial of speech analytics for call recording and QA users. OnviSource's *Explora Advantage* program assists customers with implementation, deployment and training for the best use of Explora. *Explora Advantage* also includes customer project planning, ROI analysis, customization, pilot program and continuity-assurance.

Summary

Every day enterprises communicate with customers and other constituents by phone. Examples include contact centers, inside sales, tech support, purchasing, credit and collections, and human resources. Collectively, recorded and archived interactions represent a tremendous untapped resource of valuable insights about customer attitudes, competitive actions, call quality, and potential exposures.

Contact centers need to consider analytics as a core requirement of the modern WFO suite. It is no longer an expensive frill that may come in handy some day. In this paper we have described many day-to-day applications where analytics accelerates and simplifies basic processes. At the same time, analytics saves money by freeing supervisors from mundane activities so they can devote more of their time and energies to developing more capable agents. OnviSource's Explora is easy to use, quick to install, powerful enough to handle the vast majority of your requirements, and very affordably priced. Their people work with you to help assure that you use the tools to their maximum potential and you realize a significant return on your investment.

About the Author

Dick Bucci is Senior Consultant for The PELORUS Group (www.pelorus-group.com) where he specializes in contact center technologies. He has authored in-depth reports on interactive voice response, workforce management, performance management, and interaction recording. Dick's articles and observations have been published in [CRM Today](#), [Contact Center World](#), [Customer Interaction Solutions](#), [CRM Magazine](#), [Call Center Magazine](#), [Contact Professional](#), Call Center News, [Speech Technology](#), [Workforce Performance Solutions](#), and several other trade and business publications. Dick is also managing director of Technology Marketing Associates, a marketing consulting firm. He has over 30 years of experience in the telecommunications industry.

About OnviSource

OnviSource, Inc. is a Delaware Corporation headquartered in Plano, Texas, with an Operations Center in Oklahoma. OnviSource is a leading provider of a highly affordable Workforce Optimization and Automation (WFO-A) suite of progressive point, integrated or continuous software solutions that automate, record, analyze and optimize call center and enterprise processes. OnviSource also offers a series of award-winning, Business Process Outsourcing services that deliver flexible customer interaction lifecycle management with quality, compliance and performance results.

OnviSource solutions enable enterprises and contact centers to cost effectively manage customer interactions while reducing expenses and increasing customer satisfaction and revenues through optimization and automation or by outsourcing their workforce.

OnviSource's product suite, OnviCenter 6, offers highly affordable, fully integrated software solutions for inbound and outbound call handling, workforce optimization, agent transaction automation and contact center business applications.

OnviSource's award winning OnviServ offers performance-based and technology-enabled business process outsourcing services in telemarketing, campaign management, order processing-fulfillment and customer support.



OnviSource, Inc.
1255 West 15th Street, Suite 620
Plano, TX 75075
469.241.9200
469.241.0247 Fax
www.onvisource.com
info@onvisource.com