



Witness Actionable Solutions

# Analytics-driven Workforce Optimization:

An Essential Approach to Enterprise Customer Service

A Verint Systems White Paper

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## Preface

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Increasingly, organizations are using analytics to better understand what customers think about their products, services, policies, and service representatives. Analytics offer deep insight into customer behavior and opinions — a critical step that lies at the heart of customer-centric service strategies. When deployed as part of a workforce optimization (WFO) solution, analytics can extend the reach of WFO beyond the contact center, into other areas of the enterprise — including branch, remote, and back-office operations — to enhance the customer experience, drive down costs, and improve competitive advantage.

## About Verint Witness Actionable Solutions

Verint® Witness Actionable Solutions™ was formed as a result of the company's successful combination with workforce optimization provider Witness Systems. Verint Witness Actionable Solutions enables organizations to capture and analyze customer interactions, improve workforce performance and optimize service processes in contact center, branch, and back-office operations. With the industry's broadest portfolio of innovative solutions for customer service analytics, workforce optimization, quality monitoring/full-time recording, workforce management, eLearning, performance management, and customer surveys, Verint Witness Actionable Solutions helps companies uncover business trends, discover the root cause of employee and customer behavior, and power the right decisions to help ensure service excellence and achieve continuous performance improvement across every aspect of customer operations.

## Verint. Powering Actionable Intelligence.®

Verint Systems Inc. is a leading provider of actionable intelligence™ solutions for an optimized enterprise and a safer world. More than 10,000 organizations in over 150 countries rely on Verint solutions to perform more effectively, build competitive advantage, and enhance the security of people, facilities, and infrastructure.

## Analytics: An Essential Tool for Customer-centricity

Increasingly, organizations are using analytics to better understand what customers think about their products, services, policies, and service representatives. Analytics offer deep insight into customer behavior and opinions — a critical step that lies at the heart of customer-centric service strategies.

The simplest definition of *analytics* is “the science of analysis.” However, in reality, analytics is seldom defined by the professional community and may mean different things to different people.

Within the contact center, analytics comprises an array of software solutions that focus on:

- Speech analytics
- Data analytics
- Customer feedback management

Analytics add the empirical backbone to customer centricity — a business concept that has garnered significant attention over the last few years, due in part to a hypercompetitive market and the need for organizations to rely on customer service, rather than products, to distinguish themselves from competitors.

Although widely touted in business and trade press, customer centricity — like analytics — is poorly defined, as noted by Cristian Mitreanu, founder and leader of research initiative RedefiningStrategy.com. In a paper entitled “Next-Generation Customer-Centricity”<sup>1</sup>, Mitreanu writes, “One of the most popular business concepts today, customer-centricity, has a dirty little secret. It is the concept with one of the loosest definitions out there. Most researchers and business executives alike, are content with the widespread and broad definition of customer-centricity as the capacity to understand and respond to the customer's needs.”

If customer centricity is so poorly defined, how does a contact center management team operationalize it when tasked to be more customer-centric? From a practical standpoint, how should the center be organized, staffed, provisioned, and operated to have “the capacity to understand and respond to the customer's needs?”

This is the problem that analytics — or more specifically, analytics-driven workforce optimization (WFO) — is designed to address. This paper will focus on analytics in the contact center, and how analytics forms part of an advanced workforce optimization solution that can impact areas beyond the contact center, including branch-office interactions and back-office operations.

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<sup>1</sup> “Next-generation Customer-Centricity,” Cristian Mitreanu, MarketingPower.com (American Marketing Association), June 2005.

## A Difference of Perspective: Inside Out and Outside In

Workforce optimization is a relatively new term in the industry. It was coined by analysts who saw previously disparate software solutions, including quality monitoring, workforce management, performance management, and eLearning, becoming integrated *and* enhanced by a new layer of cross-functionality based on these novel integrations. In large part, this convergence was driven by the user community, frustrated by the problems associated with multiple software applications, interfaces, and databases, unsynchronized vendor software release cycles, costly yet limited integrations, and the overhead costs of dealing with multiple vendors.

At its most elementary level, workforce optimization in the contact center involves having the best human resources on hand to meet customer transaction demand and create customer value while getting the biggest return for the total investment in people. It comprises a variety of functions and processes that have different time lines, foci, and dependencies, but share one commonality — employee performance.

Because it is a business process itself, workforce optimization not only addresses staff development needs, but also provides the opportunity to re-engineer and streamline existing contact center processes. As important as that is — and make no mistake, it's vital — workforce optimization is essentially an inward-oriented strategy that focuses upon execution in the contact center to achieve maximum efficiency and effectiveness.

On the other hand, analytics in the contact center provides the missing outward orientation, offering an unbiased view into what customers think and say, as well as insight into the behaviors displayed. It helps enable management to make informed decisions based on the “voice of the customer.”

## Analytics Versus Reporting

Although many contact centers believe they already employ analytics in their operational processes and decision-making, they often are confusing reporting with analytics. Their confusion is understandable, since analytics requires good, abundant data, and contact centers typically are awash in data — and reports.

But reports don't constitute analytics, even when you spend time “analyzing” them. Reports — including ad hoc reports — focus on what has happened. Drill-down capabilities (often confused with analytics) enable users to pinpoint where problems actually occurred (past tense). Alerts are a refinement that moves reporting from an historical perspective toward a real-time perspective.

Instead of focusing on what has happened, analytics focus on why. Why are customers calling and emailing? Why are they defecting? Why does demand in the contact center spike? Why is the average handle time what it is? Why do individuals in classes led by different instructors have dramatically different performance levels? These are the essential questions that analytics can answer.

But analytics can also address other types of questions, and they are equally important. For example, how long will customers wait in queue before becoming upset? Are calls scored as being “high” in quality actually perceived that way by our customers? How should we respond to trends that we've discovered in our data? How can we get the best possible outcome based on our current resources?

In the contact center, speech analytics, data analytics, and customer feedback management are potential standalone applications. However, just as the core functions of workforce optimization benefit from deep integration, the analytic solutions benefit from integrations and synergies with each other.

## Speech Analytics

Perhaps the most fundamental questions asked of any contact center manager are, *Why are they calling us?* and *Why do they continue to call us?* While most contact center managers can probably answer the first question, albeit using generalizations, they most likely would not be able to provide answers to the second question.

But customers tell us exactly why they are calling, emailing, and visiting our Web sites. They tell us, but we don't have the time to listen and digest it all. There are simply too many interactions to review. Speech analytics provides a solution.

Speech analytics is the result of a convergence of computer hardware, sophisticated software, and linguistics (the study of language). Seminal work in that field provided the basis for increasingly clever computer/speech applications. For example, speech synthesis and speech recognition use phonetic and phonemic knowledge to provide voice interfaces to computers. Applications of computational linguistics in machine translation, computer-assisted translation, and natural language processing are fruitful areas of applied linguistics that have come to the forefront in recent years, enabled in part by increasing computing power.

Speech analytics solutions for contact centers use techniques commonly referred to as *audio mining*, where large volumes of audio are searched for occurrences of specific words or phrases. The two most common approaches to audio mining are Large Vocabulary Continuous Speech Recognition (LVCSR) and phonetic recognition.

LVCSR depends upon a dictionary of words that it uses to understand what is being said. Pure LVCSR solutions usually need their generic dictionary expanded with industry- and company-specific words, but achieve high levels of accuracy. Using the dictionary, the software recognizer scans the conversations and creates an index. The index is searchable and contains information about the words it understood in the recorded conversations. The index can be quickly searched for key words and phrases, and only those conversations containing the key words and phrases are presented.

LVCSR solutions often provide higher relevant contact rates and present fewer false positives. But there's a price for the higher accuracy — speed. By some estimates, LVCSR systems ingest recorded speech at only about two to three times faster than real time. However, the index in a LVCSR solution can be searched very quickly. Search speed is important, because finding and retrieving relevant recorded conversations is the essence of the solution.

Unfortunately, LVCSR solutions don't easily accommodate new avenues of investigation. If, for example, you launched a new product and wanted to assess the impact of differing marketing messages on the buy and response rate, you would be faced with having to add that product name to the dictionary, and then having to reprocess the recorded calls across the study period. Moreover, if a particular word isn't in the dictionary when LVCSR builds the index, it cannot be found in the recordings unless they are reprocessed. Obviously, the better LVCSR solutions employ large dictionaries.

In contrast, phonetics recognition software doesn't understand any words at all. It understands phonemes, the bits of speech — sounds — that make up words and language. It is much faster than LVCSR. Phonetic recognition software can ingest recorded conversations at 10 to 15 times the speed of real time. On the other hand, searching a phonetic-based index is painfully slow.

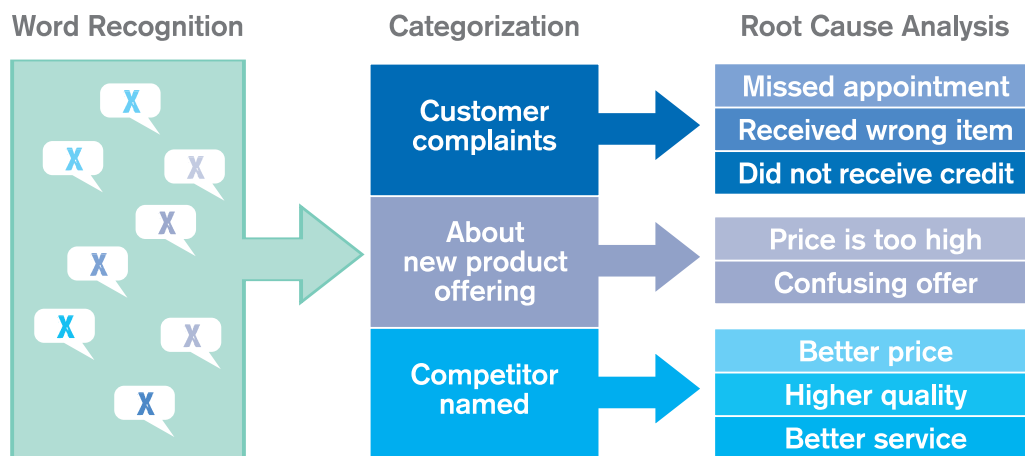
Phonetics recognition solutions can readily search for new words and phrases, since they do not attach meaning to words. But therein lies an essential problem with phonetics solutions — recognition error. The problem has some ripple effects that amplify the impact. For example, the English language is replete with:

- Homonyms – words that sound alike and are spelled alike but have different meanings, such as *stalk, bear, or left*.
- Homographs – words that are spelled alike, but have different meanings and sometimes, different pronunciations, such as *abstract, address, or does*.
- Homophones – words that sound alike but have different meanings, such as *buy, bye, and by*.  
From a phonetic viewpoint, these words are the same.

Additionally, humans use not only sound, but also many subconscious processes to achieve high speech recognition rates, including tone, facial expression, and context. For these reasons, phonetic solutions, while continually improving, have higher recognition error rates. Consequently, they can exclude or include calls inappropriately in the search results, biasing the composition of the search results and creating further inaccuracies when the calls are categorized and analyzed for potential root causes.

Next-generation speech analytics solutions employ elements of both technologies, in effect leveraging the best characteristics of each and minimizing the shortcomings. Available solutions achieve high ingestion rates with high recognition rates. For example, Verint Witness Actionable Solutions' Impact 360® Speech Analytics solution uses a very large dictionary, approaching 100 kilobytes, and rapid indexing. Coupled with an assist from phonetic analysis, the solution avoids the need for reprocessing of recorded calls, as would be required in pure LVCSR. With better, more accurate search results and better comprehension of what is being said, search results are of higher quality. Deeper comprehension of the words and phrases spoken permit sharper categorization and better analysis of possible root-cause elements.

How does it actually work? A diagram helps illustrate the process.



The process begins with Impact 360 Speech Analytics ingesting a large number of recorded conversations. Using the audio mining and indexing technologies described above, the solution recognizes words within this large volume of unstructured information and organizes them into user-created and self-suggesting categories. The software can accomplish this because it “understands” the content. In the diagram, a large number of calls have been parsed into three categories: (1) customer complaint calls, (2) calls in which a new product offering is mentioned, and (3) calls in which a competitor is named during the conversation.

The solution drills deeper into each category and identifies clusters of calls with commonalities that suggest a root cause. It’s this part of the solution that makes the biggest business difference. The key factor for success in terms of business impact lies in the quality and depth of the searchable index and the precision of the categorization and root cause identification routines.

The potential impact of the rigorous and continuous utilization of speech analytics by the contact center can be considerable. For example, an insurance company measured its first call resolution rate at 60 percent, a number well below its expectations. The company used Impact 360 Speech Analytics from Verint Witness Actionable Solutions to mine a very large volume of recorded calls. Mining the 40 percent of calls in which no first call resolution was achieved, the solution identified a high occurrence of calls that contained the phrases, “I don’t know,” “I need to check with my supervisor,” “...calling back about my claim,” and “...waiting for a claim form.”

Further analysis surfaced probable root causes for each. The “I don’t know” conversations revealed agent knowledge gaps that could be filled easily with coaching and eLearning using “learning clips” highlighting best-practice examples from recorded interactions. The “I need to check with my supervisor” conversations revealed a lack of agent empowerment embedded in the center’s processes. The “...calling back about my claim” recordings revealed processing issues outside the contact center, as did the “...waiting for a claim form” analysis.

With these powerful insights, the insurance company improved its first call resolution by 25 percent and enjoyed a number of ancillary benefits, including a substantial reduction in average speed of answer, reduction in average handle time, better staff morale, and the avoidance of hiring 22 additional agents.

## Data Analytics

Data analytics tends to be poorly understood, largely because it is confused with data analysis — a typical activity in many contact centers. It's common to see center personnel working on spreadsheets, manipulating and charting data.

But data analysis is not data analytics, and this isn't just a matter of semantics.

Imagine you had an army of analysts that had unlimited time to sift through your data and run every possible iteration of every report your system is capable of generating, filtered by every parameter that exists within the database. Then, imagine you asked them to take their results, and using one piece of paper for each metric, list up to 10 findings that have the greatest impact on the metric score. That's what data analytics does — continuously.

Analytics doesn't just track data, it provides new information from it. Years ago, when the amount of data to be analyzed was reasonably small, contact centers and other areas of the business employed analysts who used quantitative methods (statistics, mathematics, etc.) to find useful insights and extract new information from data. But with the explosion of data in the electronic age, manual methods are woefully inadequate for analyzing the enormous amount of data produced by contact centers and enterprise operations.

Data analytics uses algorithms, statistical processes, and applied mathematics to process volumes of contact data, which may include information on:

- Queues, agents and team productivity from the automated call distributor (ACD)
- Agent time utilization and activity management from the workforce management system
- Individual agent and team quality scores from the quality monitoring team
- Agent time and attendance
- Absenteeism
- Customer feedback survey scores
- Skill development scores
- CRM system data

This is only a subset of metrics produced by many contact centers. True data analytics solutions provide a viable way to process large data sets to produce new information and insights. For example:

- The average handle time of the October agent class is 350 seconds, versus a center average of 300 seconds. Focused coaching with this cohort of agents to achieve center norms is projected to improve the center's average handle time to 290 seconds, a savings of five full-time equivalents (FTEs).
- One team of agents scores well on internal agent assessments (quality score 85 out of 100), but poorly on customer feedback survey assessments (score 45 out of 100). Working with this team to achieve center norms is projected to improve center customer satisfaction from 78 to 83 (out of 100).
- Agents are scoring lower on calls involving the new product offering, reducing the center's average quality score by six percent.
- Operating systems that support calls on the night shift are taking 60 seconds longer than the same calls on the day shift, adversely impacting average handle time by 15 seconds.
- One supervisor is issuing quality scores 10 points higher on average than those issued by the other supervisors, inflating the center's average quality score by five percent.

## Customer Feedback Management

Soliciting opinions from people in a systematic manner dates back to at least the nineteenth century and probably much earlier. Contact centers have attempted to solicit the voice of the customer for years using a number of tactics and techniques. Mailed surveys, interactive voice response (IVR) systems and live telephone conversations (either immediately after the transaction or later, via a call-back) are used to determine how the customer feels about the interaction with the agent, the company, its products, and so on.

Apart from what to measure and how to go about asking the questions in the right way, customer feedback processes present an additional problem: a cost/time trade-off. If we want timely results with data granularity down to the individual agent level, we need to perform many surveys quickly during each reporting cycle (weekly, monthly, quarterly).

Mail surveys are less expensive but require much more time to obtain results. If our intentions include using survey results to focus coaching efforts, the time lag is worrisome. Telephone surveys using live interviewers are expensive and require a considerable amount of time to obtain statistically valid numbers — but can produce some valuable insights.

The search for a middle ground led to the use of IVR technology. Achieving timeliness while sharply reducing costs necessitated an approach that used the telephone, but did not involve live interviewers. Contact centers recognized that IVR scripts could be constructed to identify how customers felt about their recent interactions with the center. Moreover, IVRs are well-suited for branching question-and-answer survey construction.

One approach is to transfer the caller to an IVR customer satisfaction script upon conclusion of the call. Some centers use a sampling process to determine whether to ask the caller if he or she will agree to take a short customer satisfaction survey after the call. The up-front agreement ensures that no matter how the transaction turns out, the customer's perceptions are captured. (If the invitation to complete the survey were left solely in the hands of the agent, there might be a tendency to extend the invitation for good calls and avoid extending the invitation for problematic calls.) Similarly, the up-front agreement helps avoid customer self-screening, a phenomenon in which only callers with strong opinions accept the invitation to complete the survey when it is offered at the end of the transaction, biasing the results.

The single biggest problem with these approaches is the participation rate. People are reluctant to take surveys when interacting with contact centers. Mailed surveys frequently produce a response rate of less than five percent. Call-back surveys have a better response rate than mail, but the small sample size typically afforded in this approach seldom produces results that are applicable down to the individual agent level. Even post-call, IVR-based surveys typically have participation rates that are very low and bi-modal — only customers whose experience was really good or really bad tend to make the effort.

The low participation rate generally is attributed to survey length. With few customers agreeing to take a survey at all, pollsters are primed to ask many questions of those who do. But in doing this, they tend to annoy the survey takers and actually discourage the very activity they are seeking to promote.

Customer feedback management solutions can boost participation rates significantly higher, to 60 – 90 percent of transactions, using a methodology in which:

- Surveys are offered only for relevant transactions. For example, customers who call to inquire about store hours are not solicited to participate.
- Surveys are conducted in the flow of the interaction, rather than treated as separate transactions.
- Survey questions are in context with the interaction. For example, if customers call with a question about their statements, they are not offered a survey about new products.
- Surveys are short, in the range of three to five questions.
- Survey questions are dynamic and intelligent, with the answer to the first question determining which of several second questions are posed, and so on.
- Surveys provide opportunity for the customer to offer unstructured, verbal feedback. This is important because sometimes, even intelligent, in-context questions can fail to enable customers to convey something important to them.
- Survey questions change regularly, and during some campaigns, change multiple times throughout the day. Direct customer feedback on specific offers is among the most valuable kinds of intelligence a contact center can produce.
- Survey processes have alerts built into them, so that if customers report a really bad experience, a company representative is notified immediately.

Implicit is the notion that the entire survey mechanism, whether delivered over IVR or Web, needs to be powerful enough to meet the criteria above but simple enough so that the contact center can control and use it. When IVR systems are owned and controlled by IT, changes to the menus and questions may take too long to implement and may not even have a high priority.

With a customer feedback management system in place, contact centers can transform themselves into strategic assets, as well as improve efficiency and effectiveness. One of the more troublesome issues facing contact centers is how to reliably measure first-call resolution without causing undue agent anxiety or making erroneous assumptions from ambiguous data. Customer feedback management systems can help add the necessary clarity. For example:

Agent: "...and let me apologize again for our delay in shipping the product you ordered. There was an error in your address. I've corrected the error and you should receive your item in 72 hours."

Customer: "That's great, thanks."

Agent: "Providing good service to customers like you is something we work hard at. Would you mind giving me some feedback on how I did just now?"

Customer: "Why, not at all."

Agent transfers customer to the customer feedback IVR, which poses the first survey question: “What your problem fully resolved? Press 1 for yes and 2 for no.”

Not only can we find out without any ambiguity whether the problem was fully resolved, we can tie it directly to an agent.

Beyond accurately measuring first-call resolution, there are a host of applications for customer feedback, from transactional satisfaction surveys to image-based surveys. According to the *AMA Handbook for Customer Satisfaction*<sup>2</sup>, the following are appropriate for companies to measure:

- Attributes related to the product
- Value/price relationship
- Product quality
- Product benefits
- Product features
- Product design
- Product reliability and consistency
- Range of products or services offered
- Attributes related to service
- Guarantee or warranty
- Delivery
- Complaint handling
- Resolution of problems
- Attributes related to purchase (or customer service transactions)
- Courtesy
- Communication
- Ease or convenience of engagement
- Company reputation
- Company competence

One application of customer feedback is of particular interest — cross-validating external and internal views of quality.

Internal quality monitoring scores can be somewhat arbitrary and tend to suffer from grade inflation over time. A typical contact center that engages in internal quality monitoring tends to have scores in the mid- to upper 80s on a 100-point scale. However, results from a customer feedback management program can show gaps between the internal scores determined by the evaluation team and the external scores provided by customers. This is invaluable information and can help centers recalibrate their internal scoring processes.

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<sup>2</sup> *AMA Handbook for Customer Satisfaction: A Complete Guide to Research, Planning & Implementation*, Alan Dutka, NTC Publishing Group, 1994.

## Beyond the Contact Center: Enterprise Benefits from Analytics-driven Workforce Optimization

Measuring first-call resolution accurately for the first time and rationalizing internal quality monitoring scoring systems benefit the contact center. But contact center analytics can help centers evolve from cost centers into strategic assets by offering insight into customer behavior and opinions, helping to drive customer-centric service strategies.

When deployed as part of a WFO solution, analytics can extend the reach of WFO beyond the contact center. Nearly every department and function in the enterprise can benefit by having a better understanding of who its customers are, what they value, what they like, and what they want more of. Analytics-driven workforce optimization can provide contact centers with an effective way to manage efficiency and effectiveness while conveying critical, strategic customer information to other areas of the enterprise — including branch, remote, and back-office operations — to enhance the customer experience, drive down costs, and improve competitive advantage.

### About the Author

William (Bill) Durr serves as principal global solutions consultant for Verint Witness Actionable Solutions. With more than 20 years of experience in the industry, Bill has authored numerous articles, white papers and has written two books on the technology and management of contact centers. He is a frequent industry speaker, specializing in workforce and performance management.