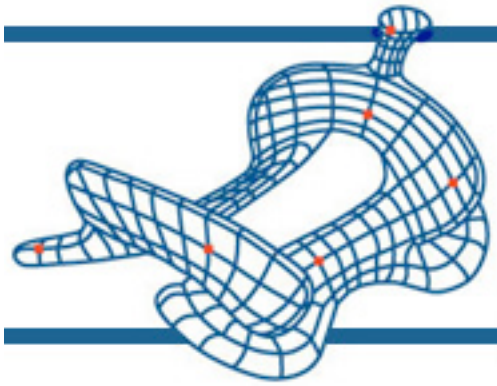

Saddletree Research

The Evolution of Speech Analytics

From Word Spotting to Driving Business Value

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Introduction

Speech analytics is a relatively new solution that is experiencing growth in demand as the benefits of the technology become better understood. The purpose of speech analytics is to automatically mine for customer intelligence and performance optimization data within the context of a recorded voice interaction. Used in conjunction with a contact center's recording technology, speech analytics scans recorded conversations with the objective of finding key words or phrases that can offer the user insights into such common business and performance factors as:

- Employee training effectiveness
- Agent performance to task
- Compliance with service objectives
- Demonstration of skills
- Industry trends
- Purchase tendencies
- Customer sentiment
- Product problems
- Demand issues
- Agent training

The first speech analytics solution for the contact center was introduced by UTOPY, Inc., of San Francisco, CA, in 2002 following the company's founding in 1999 and initial product launches in other related markets. As the originator of the term "speech analytics," UTOPY pioneered the automated analysis of unstructured data; i.e., voice conversations, in the contact center as a means of understanding customer interactions with the contact center and agent performance. Over the past several years, the value of speech analytics has grown in importance as the market has grown to appreciate its benefits.

Speech Analytics Use Cases

There are essentially three business use cases for analyzing speech. The three categories of these use cases are:

1. Categorization (Proactive)
2. Discovery (Proactive)
3. Search and Exploration (Reactive)

Categorization

In the speech categorization process, calls are categorized based upon phrases used by agents and customers during the call. During this process, key agent performance indicators are measured via the recognition of critical phrases that occur during the call and are flagged for review and action as appropriate. Speech categorization can drive contact center performance management through the assurance of agent performance against key performance indicators (KPIs). As a result, speech categorization delivers a high degree of business value.

Discovery

The second use case of speech analytics, discovery, automatically uncovers trends or events occurring within conversations. These are typically trends or events of which the organization may not have previously been aware. Discovery can be useful for proactively uncovering important trends or issues before they become major problems for the organization.

Search and Exploration

The third use case of speech analytics, search-and-exploration, is the process of searching for individual words or phrases spoken within calls, generally on an ad-hoc basis. Search

is useful within many analysis workflows and can be used for ad-hoc exploration of conversation content or to test hypotheses.

Speech Analytics Technological Approaches

Each of the analytics use cases described above requires a different data mining technique, each with specific strengths and weaknesses relative to their business objectives.

Categorization is accomplished by the speech analytics software reviewing recorded voice transactions for critical phrases as defined by the user. Categorization is recognized for its ability to drive operational performance in the business. Because the recorded voice does not have to be translated or transcribed before it can be used, categorization captures the greatest percentage of utterances relative to other methods and thereby provides a high degree of accuracy.

Discovery and search-and-exploration share a similar technological approach in that both rely upon the translation of the recorded voice transactions into text and then exploring the text. The speech recognition engine transcribes the audio into collections of words or phonemes, which are the smallest discreet units of human speech. The text mining or search engine then looks for keywords, or combinations of keywords, in the converted text or phonemes. The strength of this approach is its ability to enable very rapid ad-hoc searches and exploration of unstructured data.

Speech Analytics and Market Acceptance

For many years, speech analytics has been considered to be a complement to a contact center recording system. However, speech analytics was primarily thought of as a word-spotting technology which required a highly skilled analyst to know which words to

search for in order for it to deliver business value. Hence, the return on investment (ROI) of speech analytics solutions was difficult to predict, which caused market uncertainty. It is interesting to note, however, that this market uncertainty has been dissipating over the past few years as the business use cases and the ROI they deliver have become better understood among potential users. Demand for speech analytics has been increasing as evidenced by industry demand statistics.

The National Association of Call Centers (NACC), a non-profit industry membership organization based at The University of Southern Mississippi, has been tracking sentiment, attitudes, and intentions among contact center end-users for the past three years. Part of this tracking, accomplished through a survey process among NACC members and readers of its monthly newsletter, follows interest in speech analytics among survey respondents.

Since 2008, participants in the annual NACC survey have been asked about their use of speech analytics in the contact center and/or their intentions and attitudes toward speech analytics in the contact center. Table 1 below illustrates how these responses have changed over the years.

Table 1: Survey Responses to Questions Regarding Speech Analytics

	2008	2009	2010
Already Own	8.3%	10.3%	14.5%
Has Been Funded for Purchase	N/A	4.7%	5.5%
Will Evaluate for Purchase	21.7%	28.0%	26.4%

Source: NACC
November 2010

Using the NACC estimate of approximately 66,000 contact centers in the U.S., the survey indicates that about 17,000 contact center professionals will evaluate speech analytics for purchase during 2011. The survey also indicates that the number of contact centers currently using speech analytics has nearly doubled during the three-year period, from approximately 5,400 contact centers in 2008 to over 9,000 in 2010.

When speech analytics owners were queried about the factors behind the decision to acquire speech analytics, 81 percent of respondents cited the return on investment (ROI) as the dominant decision driver. This is not a surprising result as the ROI delivered by speech analytics has proven to be substantial.

An example of the ROI delivered by speech analytics is illustrated by the case of a financial services company that used speech analytics to improve sales performance in the areas of new customer acquisition as well as cross-selling and up-selling. This particular company had reached what they believed was their maximum improvement in sales performance based upon traditional training methods. To break through this sales performance wall, speech analytics employing best-of-breed speech categorization was implemented. Management was able to quickly identify which words, phrases, and other skills were being used by the most successful agents to close sales or close cross-sell opportunities.

Management immediately implemented training and coaching based upon the findings of the speech analytics deployment and was able to continually validate the sales model as it developed. Similar to agent performance, sales performance was also instantly measurable, as was the impact on revenue. By continually monitoring speech analytics results and utilizing coaching and training based upon the outcomes, this organization improved sales rates by over 40 percent.

A Profile of Today's Speech Analytics User

The majority of companies that have purchased speech analytics have multiple contact centers. 44 percent of current speech analytics users have between two and four contact centers. Not only are larger organizations more likely to embrace new technologies, many have found that speech analytics allows them to normalize performance measurement across geographical and technological boundaries. Uniform performance standards can be maintained throughout the enterprise via the measurement enabled by speech categorization.

Of those survey respondents indicating their intention to evaluate speech analytics for purchase during 2011, 75.9 percent pointed to ROI as a dominant factor in their decision to acquire the technology. While the reasons behind acquiring speech analytics haven't changed significantly, the distribution of the size of the organizations interested in evaluating speech analytics has.

Among current owners of speech analytics solutions, only 6.3 percent come from organizations with one contact center. Among those planning to evaluate speech analytics in 2011, 31 percent come from organizations with only one contact center; 35 percent of respondents come from organizations with between two and four contact centers; 27 percent of respondents come from organizations with between five and nine contact centers; and seven percent come from organizations with ten or more contact centers. This demand distribution indicates broader acceptance of speech analytics across the industry and is further evidence that speech analytics has become a mainstream contact center solution.

The recent economic recession effectively flattened or reduced demand for contact center solutions across all categories, but it is noteworthy that this downward pressure had only a slight effect on speech analytics. It is also noteworthy that ownership of speech

analytics has increased steadily over the past three years, as have the number of contact centers that have funded speech analytics for purchase over the following 12 months.

Introducing UTOPY SpeechMiner® 7.0

In order to meet the steady growth in demand for speech analytics and to maximize the ROI by delivering the best technology for each usage of speech analytics, UTOPY has introduced an innovative new product release specifically designed to address the analytics needs of organizations of all sizes and the functional areas within those organizations such as customer care, marketing, compliance and product management. UTOPY SpeechMiner 7.0 brings together best-in-class speech categorization via UTOPY's direct phrase recognition approach with automatic discovery and rapid search-and-exploration driven by speech-to-text transcription to provide a uniquely comprehensive speech analytics solution.

UTOPY SpeechMiner 7.0 solves the problem of having to decide which speech analytics technology delivers the most value to the business. SpeechMiner 7.0 combines the performance optimization muscle of precise and comprehensive speech categorization with the efficiency of rapid and intuitive ad-hoc search-and-exploration to create an unprecedented, inclusive speech analytics tool with the ability to address virtually any audio mining application with industry-leading technology.

SpeechMiner 7.0 also includes new discovery analytics that automatically uncover the most important recent changes in the voice of the customer. These discovery analytics are powered by proprietary clustering algorithms which are driven by speech-to-text transcriptions and text analytics. The discovery analytics automatically and proactively inform users of the important topics they uncover.

UTOPY uses the powerful SpeechMiner 7.0 platform as the foundation for an innovative way to drive performance optimization in the contact center. Two traditional contact

center agent performance optimization applications are now available as applications that run on SpeechMiner; however, these applications are completed in a unique and innovative way. The next section describes how UTOPY uses speech analytics as the driver for quality management and coaching in the contact center.

Speech Analytics-Driven Performance Optimization

Performance optimization in the contact center historically has been driven by methods such as:

- Quality management scoring of a randomized sample of less than one percent of calls;
- Performance management results based upon completed transactions;
- Customer surveys of the typically three percent of customers who agree to participate in the survey.

With the release of SpeechMiner 7.0, UTOPY is introducing an alternative method of driving contact center performance optimization based upon a comprehensive analysis of the interaction with the customer. This innovative initiative removes much of the subjectivity found in some of the traditional performance optimization drivers listed above while simultaneously leading to a deeper understanding of customer interactions. .

With this new release, UTOPY has introduced new quality management and coaching capabilities that are based upon the use of speech analytics as the foundation for the performance optimization process.

Speech Analytics-Driven Quality Management

A typical quality management practice dictates that the contact center quality analyst review a small percentage of randomly selected customer transactions. UTOPY challenges this routine with the introduction of Intelligent QM. UTOPY reviews all calls, as opposed to a small percentage of calls, and automatically categorizes these calls. Intelligent QM then pinpoints the calls that require further monitoring based upon the findings of the speech analytics categorization process.

Because call identification is based upon the review of all calls versus the review of a small percentage of random calls, the user can be confident in the accuracy and comprehensive nature of the UTOPY quality management process.

Speech Analytics-Driven Coaching

To complement the introduction of speech analytics-driven quality management, UTOPY has released the second generation of UTOPY Intelligent Coaching. Like Intelligent QM, this agent coaching solution is built upon the UTOPY SpeechMiner platform and uses the highly accurate results of the speech analytics categorization process to identify coaching opportunities.

Once calls have been analyzed and categorized by SpeechMiner, the analytics within UTOPY's applications correlate this analysis with KPI measurements delivered by UTOPY's packaged KPI solutions and quality monitoring scores for each agent. As a result of this analytical process, UTOPY automatically identifies calls that indicate a need for agent coaching and proactively brings these calls to the attention of appropriate supervisors. UTOPY not only identifies problem calls, it can also identify exemplary calls that can be used for coaching and training purposes. Coaches can use these recorded calls within the context of a training session, quickly creating training material that is of direct relevance to the agent involved.

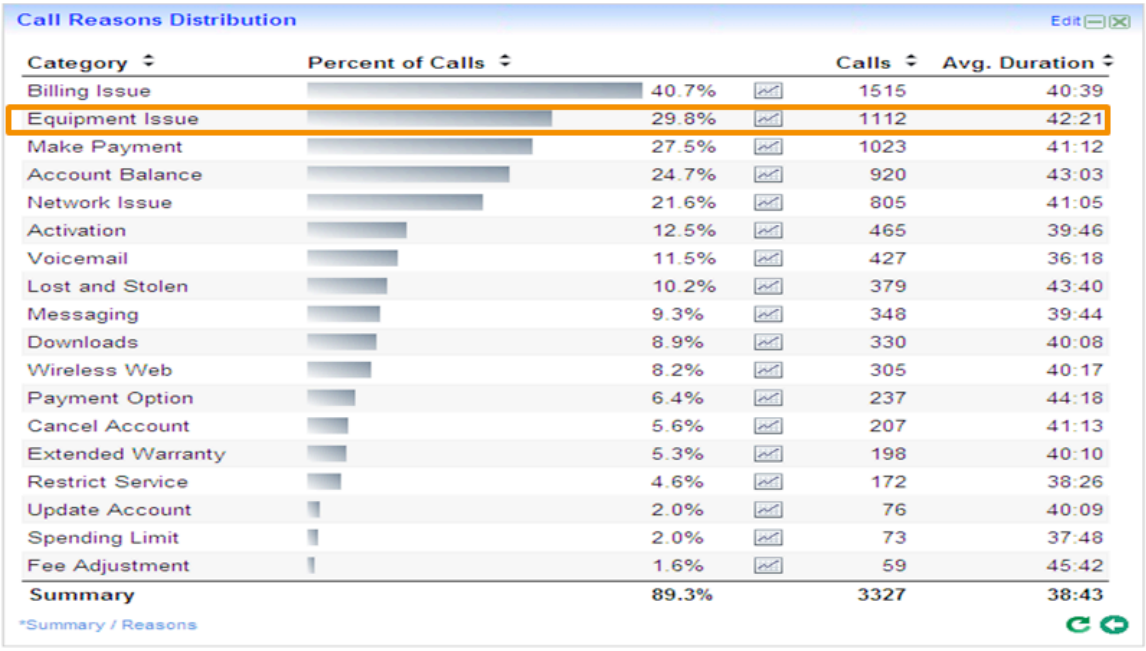
Intelligent Coaching also records and tracks coaching session actions. Once the coaching session is complete, UTOPY records and tracks the subsequent performance of the agent via the analysis of recorded calls and comparison to the agent's KPIs. Coaching session actions are correlated with the subsequent results, enabling a continual cycle of coaching and agent performance improvement.

Application Scenario Case Study

This application scenario will illustrate the strategic and tactical benefits of a comprehensive speech analytics and performance optimization solution in a typical contact center scenario. In this case, the scenario illustrates the discovery of an equipment problem by a wireless communications carrier.

As is the case in any scenario, UTOPY SpeechMiner analyzes virtually all calls to the contact center and categorizes them into predefined groupings based upon the business objectives of the user. Figure 1 below illustrates the distribution of calls and the category of each call.

Figure 1: UTOPY SpeechMiner 7.0 Call Classification Screen



Call Reasons Distribution

Edit

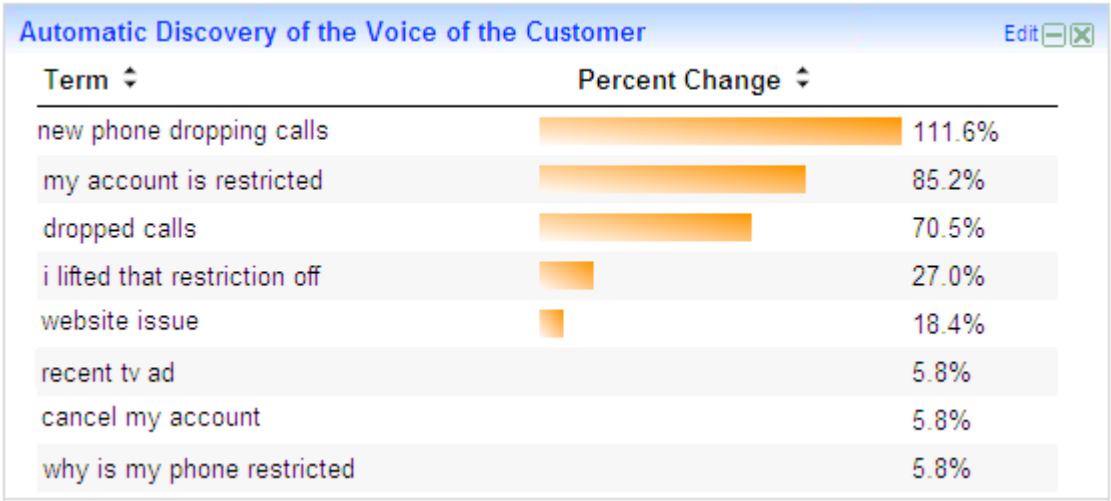
Category	Percent of Calls		Calls	Avg. Duration
Billing Issue	40.7%		1515	40:39
Equipment Issue	29.8%		1112	42:21
Make Payment	27.5%		1023	41:12
Account Balance	24.7%		920	43:03
Network Issue	21.6%		805	41:05
Activation	12.5%		465	39:46
Voicemail	11.5%		427	36:18
Lost and Stolen	10.2%		379	43:40
Messaging	9.3%		348	39:44
Downloads	8.9%		330	40:08
Wireless Web	8.2%		305	40:17
Payment Option	6.4%		237	44:18
Cancel Account	5.6%		207	41:13
Extended Warranty	5.3%		198	40:10
Restrict Service	4.6%		172	38:26
Update Account	2.0%		76	40:09
Spending Limit	2.0%		73	37:48
Fee Adjustment	1.6%		59	45:42
Summary	**89.3%**		**3327**	**38:43**

*Summary / Reasons

Source: UTOPY

As illustrated by Figure 1, SpeechMiner 7.0 has identified an excessive number of calls that fall into the predefined "Equipment Issue" category. At this point, the user knows that a high number of customers are calling in with equipment problems, but the nature of the problems is not clear.

Figure 2: UTOPY SpeechMiner 7.0 Discovery Analytics



Automatic Discovery of the Voice of the Customer

Edit

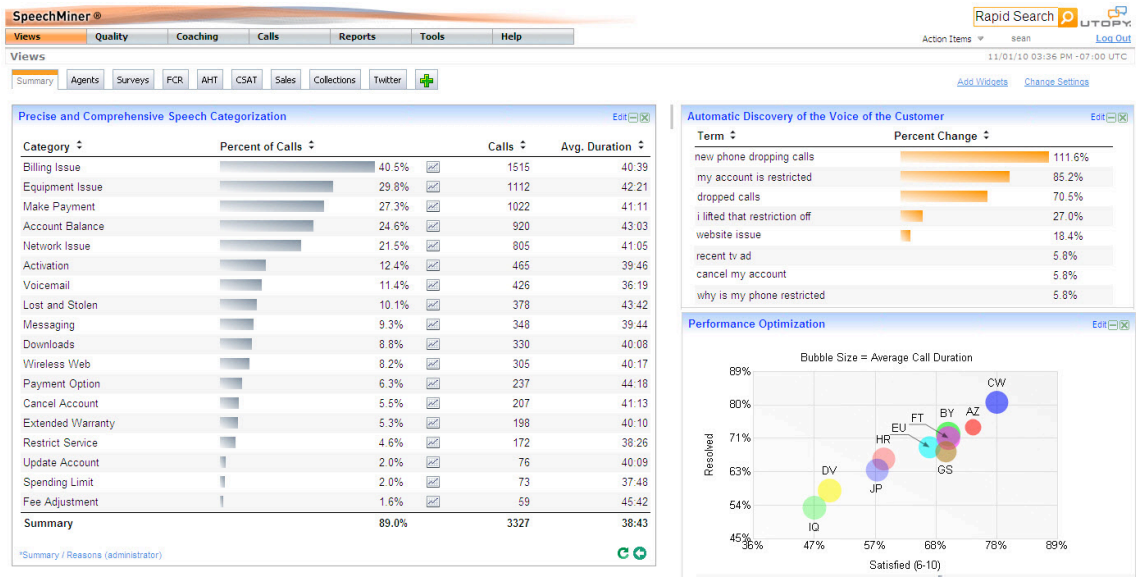
Term	Percent Change
new phone dropping calls	111.6%
my account is restricted	85.2%
dropped calls	70.5%
i lifted that restriction off	27.0%
website issue	18.4%
recent tv ad	5.8%
cancel my account	5.8%
why is my phone restricted	5.8%

Source: UTOPY

Simultaneously, the discovery analytics within SpeechMiner 7.0 have automatically discovered that several customers were complaining about dropped calls on their new phones last week, as illustrated by Figure 2.

This discovery, when coupled with the excessive volume of equipment calls last week, which the supervisor was simultaneously informed of by a single UTOPY dashboard as illustrated in Figure 3 below, suggests that the root cause of the equipment problems might be an issue with the new phone model, prompting the supervisor to explore the problem further by using SpeechMiner 7.0 to search among the equipment calls category for examples of dropped calls on the new phone and drill down to the relevant parts of individual calls to gather more details.

Figure 3: UTOPY SpeechMiner 7.0 Dashboard



Source: UTOPY

The contact center can now send this valuable discovery to product management in order to address the equipment problems. To address the agent skills required to meet customer service concerns with this particular problem, call centers can set up individual

agent coaching sessions using UTOPY Intelligent Coaching, thereby closing the performance optimization loop.

The View from the Saddle

The pioneering spirit of UTOPY is once again apparent with the release of SpeechMiner 7.0, Intelligent QM and the next generation of Intelligent Coaching. Speech analytics has been evolving slowly since UTOPY introduced it to the contact center market in 2002, and the business value and ROI of speech analytics has been difficult to quantify. This is no longer the case.

The combination of precise and comprehensive speech categorization with automatic discovery and rapid ad-hoc search unifies these important capabilities within SpeechMiner 7.0 while simultaneously opening innovative new market applications as speech analytics evolves into the basis for a new performance optimization strategy.

UTOPY SpeechMiner 7.0 has the potential to redefine how the industry views contact center performance optimization. Basing both quality management and coaching on a review encompassing all customer calls rather than on a small percentage of random calls will require contact center management to embrace a new mindset. The comprehensive nature of this new attack on evaluation and analysis likely will force the industry to redefine how contact center performance optimization is conducted in the future.

As illustrated earlier, the demand for speech analytics has grown steadily for the past few years following a period of industry education. UTOPY SpeechMiner 7.0 is leading the industry into the next phase of education and the understanding of the breadth of speech applications in the customer service profession. Speech analytics is rapidly becoming a requisite component of the contemporary contact center.