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Speech Analytics in Today's Emergency Communications Center

A Kova Corp White Paper

Public safety answering points (PSAPs) often receive requests from law enforcement officials to retrieve 9-1-1 call recordings to collect evidence, review call content, and note the date and time of calls. What if PSAPs could do more than simply hand over the recorded conversations? What if investigators could leverage calls in the 9-1-1 center to piece together a flow of events, surface evidence, and identify related, yet previously undetected, calls that could add depth to an investigation?

Speech analytics software can provide this level of insight. Used for the last decade in commercial settings, speech analytics has only recently entered the public safety arena to help PSAPs accomplish the goals mentioned above — as well as to detect trends in call volumes that can serve as early warnings of future incidents.

What Is Speech Analytics?

Speech analytics software converts conversations from unstructured audio recordings into data that is structured in an index, where it can be readily searched and analyzed. This activity takes place during three stages:

Stage 1. Recorded conversations are converted from audio into data.

Stage 2. Data is processed to make it usable. This includes creating a list of the user-predefined words detected in the processed conversations, as well as counting how frequently the words are used, and noting where they are used in relation to other words contained within the conversation.

Speech analytics software can detect an increase or decrease in the usage of specific words — a key benefit for surfacing trends.

Stage 3. Through an interface, users analyze the data to extract actionable intelligence. The simplest interfaces provide keyword spotting, which is a basic search for specific words or phrases in recorded calls.

Categorization goes a step further by using call content to classify large volumes of calls into defined categories. Sophisticated speech analytics solutions, such as Verint® Systems' Impact 360® Speech Analytics™, can analyze a set of categorized calls, such as calls related to gang activities, and automatically surface underlying issues (an increase in the usage of the name of a particular gang name, for example), regardless of whether the user has defined these issues or root causes in advance.

Speech Analytics in Public Safety

Commercial businesses have used speech analytics in their contact centers for about a decade. The software has also established a foothold with government agencies for security purposes, such as anti-terrorism initiatives. These deployments have been limited primarily to organizations having the budget to invest in emerging technologies. Recently, however, speech analytics has become available to public safety agencies on a broader scale, thanks to the increasing affordability of powerful computer hardware.

Spotting Trends Proactively: A Real-Life Example

Because speech analytics solutions can identify the types of calls showing the sharpest increase (or decrease) in the occurrence of specific words over the last day, week, month, or several months, they offer investigators new insight into rising trends. These trends often serve as a precursor to incidents — allowing public safety agencies to be better prepared and even able to take preventive action.

A Pennsylvania PSAP deployed speech analytics with call recording software in its communications center. The jurisdiction had experienced a string of porch fire arson incidents, and as part of the investigative process, the fire department compiled a list of all the home addresses where the arsons occurred.

Using speech analytics, the PSAP was able to identify related crimes by searching through its broader database of 9-1-1 calls. The analytics software revealed other addresses that had experienced similar, arson-related crimes. This information would have been very difficult — and costly — to detect using traditional investigative methods. However, because speech analytics can index every word and phrase for context and meaning, the PSAP was able to search calls for the terms “fire,” “porch,” and “burn.” It could then isolate conversations for further investigation, and with trend analysis, reveal activity around these terms.

By determining the correlation between calls early enough, law enforcement can initiate preventive measures and help curtail incidents and crimes. Moreover, such analysis can provide law enforcement and other public safety officials with a “big picture” on patterns and trends in the community — ranging from spikes in crime to identifying the need for increased public education on fire safety.