

News Release

FOR IMMEDIATE RELEASE

Hitachi Launches Sentiment Analysis Service to Classify and Visualize Voices of Customers into Around 1,300 Types of Topics, Feelings, and Intentions Utilizing AI

Advanced adoption at Honda, for its effectiveness analysis on new vehicle announcements, events and exhibitions

Tokyo, October 1, 2018 --- Hitachi, Ltd. (TSE: 6501, "Hitachi") today announced that it has now started offering the Sentiment Analysis Service to classify and visualize customer voices into around 1,300 topics, feelings, and intentions from media information such as social media, TV programs, and newspapers, in addition to blog/review information, and conversation records in call centers.

The service utilizes a sentiment analysis AI of the Institute of Language Understanding Inc. (hereinafter, "ILU"), a Tokushima University-originated startup that has extensive experience in the natural language understanding field. The service was jointly developed with Honda Motor Co., Ltd. (hereinafter, "Honda"), and it accurately analyzes the feelings toward companies and products from digitized media information. In addition, by cooperating with business systems and combining analyzed customer voices with business data such as sales results and quotations, customers can utilize it for a variety of corporate activities such as brand strategy as well as sales and production planning, product development, and risk management.

Prior to the start of the service provision, the service has been utilized by Honda since April 2018 for its public relations and marketing activities. For analyzing responses to new vehicle announcements, events and exhibitions, it visualizes images and feelings more precisely, for example, by model and by topic, having a certain effect such as reducing the workload required for analysis and report creation.

Recently, many companies have been utilizing media information and blog/review information, and needs are increasing to make use of the information as customer voices for corporate activities. Because analyzing text data requires consideration of context and meaning, in order to achieve an effective analysis result, certain technologies are required; maintaining a dictionary of synonyms in response to word changes and trends, accurately narrowing down the data required for analysis from an enormous quantity of data, properly recognizing the separation between words and syntactic dependency, and understanding the meanings of sentences such as feelings and intentions, which do not appear explicitly in the letters.

As a consequence, Hitachi and Honda utilized ILU's AI and jointly developed a service that enables a highly accurate sentiment analysis. To commence the provision of the service, Hitachi developed a new filtering technology to refine the necessary data for analysis extremely accurately. The technology was adopted as one of the service's core technologies, as well as ILU's AI. With the filtering technology, the service continuously improves the accuracy of data refining by machine learning for keywords with high relevance and appearance frequencies for the words to be collected, and by automatically updating the filtering conditions registered in advance.

The service provides total support from the collection, analysis, and visualization of data until operation and maintenance such as the automatic maintenance of data refining conditions. Because an enormous amount of data (thousands of millions of data) such as data collected from media and dictionary data can be stored and rapidly processed, the service can quickly and accurately analyze the feelings toward companies and products. In addition, because it has the capability of Enterprise systems cooperation, customer voices can be connected with promotion planning and sales forecasts. With the function of automatically detecting and reporting the expansion of negative feelings, it is also a useful tool for risk management. Utilization in versatile operations in companies is anticipated.

Moving forward, Hitachi will broadly expand the initiative with Honda as a use case of the Hitachi Digital Solution "Lumada," mainly targeting companies who serve the consumer business.

Features of Sentiment Analysis Service

1. Achieves an accurate sentiment analysis with an AI that precisely understands natural languages

The service adopts ILU's AI technology to classify text data into around 1,300 types of topics, feelings, and intentions. For example, three major classifications such as "positive," "neutral," and "negative," as well as a total of 81 more detailed types, can be used for identifying feelings. These enable a highly accurate sentiment analysis. A dictionary database accumulated by ILU over around 30 years consists of 76,000 items of word knowledge and combinations of more than 40 billion patterns of co-occurrence* knowledge, allowing highly accurate understanding even for indirect meaning that cannot be read from letters, such as the feelings and intentions implied in sentences.

* Frequent occurrence patterns of one word and another word in a sentence. In a topic related to elections, for example, the word "election" and the words "run for" appear relatively often at the same time.

2. Enables highly accurate data refining with the filtering function utilizing machine learning technology

To accurately analyze customer voices from the data that is being generated enormously in real time, such as blog/review information, the operation workload to maintain accuracy has become an issue, such as periodically reviewing data refining conditions in response to trends and changes of words.

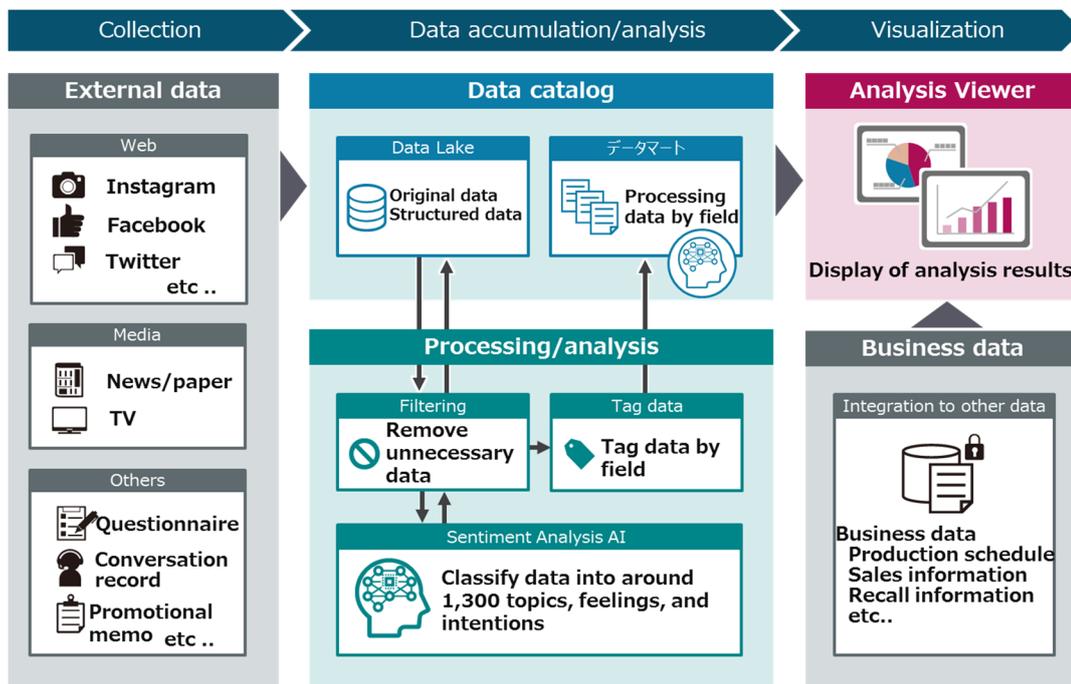
The filtering technology developed this time is a technology for learning closely related words from collected data with machine learning, and for automatically updating data refining conditions. Even for words that have not been registered beforehand in data refining conditions such as buzzwords, coined words, and technical terms, because it determines whether the word can be subject to analysis from the frequency of appearance and the relationship of syntactic dependency between words, it enables the maintenance and improvement of refining accuracy without increasing the workload required for the maintenance of the dictionary.

3. Implements a search viewer which offers users other topics of interest

Analyzed data is tagged not only with sentiment-related information, but also with relationship information between words. Users can search by topic match instead of word match. For example, when the words “home run” are utilized in a document, they are classified in the category of “baseball.” When narrowing it down using “baseball,” even if “baseball” is not stated in the document, a sequence of information classified as “baseball” is shown as a search result. Users can undertake analysis without depending on the skill of searching, and discover the document related to the topics to be searched as well.

In addition, it provides a search viewer that clearly shows analysis results, and offers an easy-to-use screen design. Screens can be customized depending on customer needs in a specific industry and task.

Overview diagram of Sentiment Analysis Service



Use cases of Sentiment Analysis Service

- Analyzing blog/review information and utilizing it for the company's brand analysis, public relations strategy, product planning, sales strategy, and other purposes.
- Detecting the risk of the company's products and potential complaints in advance, and utilizing it for social media flaming prevention, recall measures, and service quality improvement.
- Analyzing comments made to call centers and survey results of employee satisfaction research, and utilizing it to improve customer satisfaction and employee satisfaction.
- Combining business data such as product quotations and sales records with internet information, and utilizing it for sales forecasts.

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For Business Inquiries on this Technology

<https://www.hitachi.com/products/it/appsvdiv/inquiry.html>

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