

How to Reform Your Business Operations Using Artificial Intelligence

— Making Call Centers More Efficient Through Interactive Solutions —

With the recent boom in artificial intelligence (“AI”) has come the expectation that AI can be leveraged for operational reforms. Yet this expectation often leads companies to believe that adopting AI will automatically allow them to achieve their objectives, and leads the use of AI—which should be viewed as a means—to become an end in itself. In this report, we discuss cases where AI solutions have been successfully adopted, and comment on key points on the use of AI.



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Key Points on the Use of AI

Those seeking to reform their business operations using AI should be mindful of several points when considering the adoption of AI. We discuss the two most important points below.

(1) People and AI Should be Utilized Differently

One key point when introducing an AI system is how to properly divide operations among your human personnel and your AI. Take call center operations at a large bank, for example. Such call center operations can be divided into those that are relatively simple and have little variation, such as order processing and application procedures, and those that are more complex and feature greater variation, such as sales and handling complaints. Obviously, the former type is better suited to AI.

Yet we should note that AI can have its uses even when it comes to handling complaints. The process of dealing with complaints involves grasping, categorizing, and systematizing a wide variety of complaint-related information without missing any details, assessing the customer’s profile and the product’s features, and then deriving the optimal handling method based on past trends. Consider that with a process like this, the more complex the nature of the complaint is, and the more accurately and promptly it needs to be resolved, the more suitable AI will be compared to human beings.

In this case, the ideal division of roles would entail assigning the task of deriving the optimal handling method to the AI, while having the operator consider how best to convey it to the customer so as to maintain and improve

customer satisfaction. Thus, the effective use of AI requires that companies subdivide their operational process and carefully consider how to allot roles to their staff members and their AI.

Dividing roles between people and AI is liable to make one consider letting human operators interact with preferred customers while entrusting the AI with handling ordinary customers, but that would be a rather lopsided, company-centric approach. Whether the customer is preferred or ordinary, there are times when you want to conclude business quickly, as well as times when it is not fully apparent what the customer wants to discuss. AI would likely allow you to handle the former situation rapidly and inexpensively, while the latter case would probably be handled best by an operator. That is why the use of AI must factor in the customer's viewpoint in the truest sense, which means finding out the customer's situation and taking the ideal approach using a combination of people and AI.

(2) An Autonomous Learning Structure

The most time-consuming aspect of adopting AI is the process of training the AI to reach the level where it can actually be used in operations.

Currently, AI which can be used in operational reforms are able to store operational knowledge via machine learning, but this requires people to generate large volumes of learning data and having the AI read it. This labor is a major obstacle in the adoption of AI. Accordingly, if it were possible to make AI capable of autonomous learning through everyday operations, and thereby cut down on the labor of data preparation, the adoption of AI for operational reforms would surely become much easier.

Nomura Research Institute, Ltd.'s (NRI) voice recognition and interactive summary solution "True Teller Voice Digest" makes it possible for AI to learn about interactive summaries through operations performed by call center operators. In other words, the AI is made to learn the content of the operators' call memos and the results of their calls as many times as the number of operators and calls received. Under this system, the integration of this collective human intelligence in the AI allows the AI to learn naturally.

Assisting Operators Using Voice Recognition and Interactive Summaries

"True Teller Voice Digest" transcribes every single word in a phone call between a customer and an operator (i.e. voice information), and also precisely ascertains the main topics and intent in the customer's speech and automatically generates a text summary of the content. This makes it possible to drastically reduce the amount of time

needed for the operator to input the call content.

More and more companies have been adopting “True Teller Voice Digest” recently. Without a doubt, their underlying aim in doing so is to increase their operators’ efficiency in order to solve the problems that consistently rank highest when it comes to dissatisfaction with call centers—namely, calls that do not go through and long wait times.

For instance, at the customer service center for defective products at a certain home appliance manufacturer, it previously took an average of five minutes to input call content after a phone conversation had ended, but after they adopted “True Teller Voice Digest” that time was shortened to approximately one minute. They now report that they no longer have to keep their customers waiting on hold.

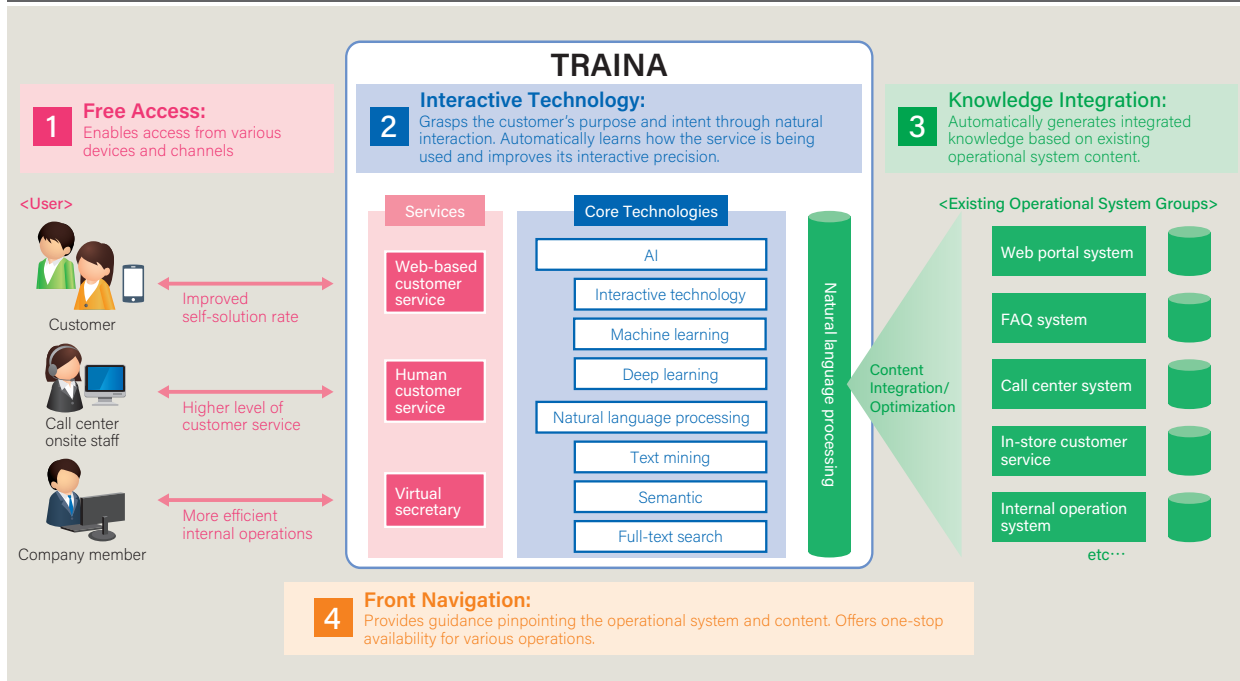
SKY Perfect Customer-Relations Corporation uses “True Teller Voice Digest” to make text summaries of some 400,000 conversations between its customers and its representatives each month at its call center, and it has been analyzing and using the accumulated data to grow its customer base (August 7, 2015 edition of Nikkei BP’s “Nikkei Big Data” magazine). And Shiseido Japan employs “True Teller Voice Digest” in producing text-based summaries not only of its phone calls, but also of its video chat and text chat content.

As can be seen from the above examples of how AI has been adopted, the key thing is the summarization after the phone calls have been transcribed. That is why NRI is looking to evolve AI-based learning even further. For instance, if a human being produces a model summary and teaches the AI the rules of summarization, and then the AI derives a summary based on those rules and an operator corrects the results, having the AI then learn the corrections will lead to an even more appropriate summary. Running through this cycle continually will enable the AI to approach the model answers generated by human beings.

NRI’s AI Solution: TRAINA

TRAINA, which NRI began providing in July 2016, is a solution designed to make counter services more efficient at call centers and online customer portals. Based on the text analysis solution “True Teller,” which uses text mining and other natural language processing technologies cultivated over many years by NRI, this solution incorporates AI-based interactive technology. (See Fig. 1)

Fig. 1: AI Solution "TRAINA" — Functions and Features



(1) The Four Features of TRAINA

① Free Access

TRAINA is now accessible not only on PCs but also from smartphones, tablets, and other devices. For this reason, it is hoped that TRAINA can be used in a variety of settings, including as a web-based information desk encouraging customers to resolve their own problems, as well as assisting call center operators. As it also features a voice recognition feature, it can provide full service without interruption for inputting or other types of operations.

② Interactive Technology

TRAINA works, for instance, by asking customers who have accessed the help center questions in order to narrow down their intent or purpose, and it is through this sort of repeated natural interaction between people and AI that the solution provides answers which match customers' needs. Even if the content of a customer's consultation changes, the system is able to use its previous interaction history to improve the quality of the interaction.

③ Knowledge Integration

Conventionally, for an AI to interact with people, it was necessary to envision numerous scenarios and prepare questions in advance, and this factor was responsible for driving up the cost of AI adoption and management. TRAINA's knowledge integration function makes this more efficient, having the ability to integrate various content

such as a company's internal system manuals and FAQs and prepare the necessary questions. Plus, by automatically updating its banks of knowledge and know-how of specific coordinators that are stored in existing operational systems, it can maintain an up-to-date knowledge base.

④ Front Navigation

Up to now, customers who have accessed a help center have had to find out themselves which system from among several they needed to use to go through the correct procedure. By contrast, TRAINA is equipped with a "front navigation" feature, which ties multiple systems together so as to function as if it were a single system. This is what enables the existing systems—which are themselves unchanged—to become more user-friendly for the customer.

(2) Potential Use Scenarios

Adopting TRAINA with its abovementioned features on a customer-oriented website will enable one's customers to access a large volume of knowledge in an interactive manner, and will improve the website's convenience significantly. This means there will be more cases where customers are able to solve their own problems, and companies can therefore expect to cut their costs involved in handling inquiries, including at call centers.

Call center operators will be able to refer to multiple manuals and FAQs collectively. TRAINA can also present operators with multiple potential responses, enabling the operators to repeatedly go through the options to narrow down the candidate responses and thereby improve the precision of their answers. This method permits even an operator with limited experience to interact smoothly with customers, and contributes not only to higher customer satisfaction, but also to lower costs spent on training operators.

But TRAINA does not only make customer response operations more efficient—it also is effective at raising the efficiency of internal company operations. Given how many internal documents there are that get filed only occasionally, it can be easy for people to forget how to process them. TRAINA functions as a personal "secretary" for each member on staff, performing these sorts of typical operations in their place. For instance, if asked to "tell me how to apply for reimbursement of my transportation expenses," TRAINA will guide you through the procedure, and the process is completed simply by following the instructions. Multiple systems are working together in complex ways in the background, yet there is no need for the user to be aware of this. This feature is the "front navigation" mentioned earlier. Employing all of your company's internal systems in a centralized way using TRAINA can simplify operations and procedures that were once laborious and time-consuming.

This paper has introduced some of NRI's solutions which leverage AI, but in fact all of our solutions were born from

gaining a true understanding of our customers' businesses and considering how people and AI can work together to make those businesses more efficient.

As is true for all types of IT services, AI is merely a tool for enhancing operational efficiency or enacting other operational reforms, and it is the role of human beings to master its use and increase its effectiveness. The key is therefore to comprehend the strengths and weaknesses of human beings and those of AI, and to clarify the desired effects before undertaking the adoption of AI. NRI will continue as it has done to promote such efforts and endeavor to help its customers with their high-level operational reforms utilizing AI.

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