# Language I/O Solution for Multilingual Customer Support

**Diego Bartolome**
Language I/O
diego.bartolome@languageio.com

**Chris Jacob**
Language I/O
chris.jacob@languageio.com

## Abstract

We describe Language I/O's multilingual customer support solution. By combining intelligent selection of machine translation vendors with a self-improving translation process, we enable support teams to become multilingual in less than 24 hours, while maintaining ISO-27001 certification and general data protection regulation (GDPR) privacy standards.

## 1. Introduction

Support is a key business process to provide the best customer experience and fuel growth. It requires that customers interact with global corporations in their own language through any channel, and the requests need to be solved efficiently and as soon as possible. This involves a significant capital expense as well as ongoing operational costs. There are many pieces required to optimize customer support operations, including but not limited to chatbots and automation, live agent assistance based on machine learning, insights derived from data in real-time, and self-improving machine translation.

Enabling a support teams to have high-quality conversations via translation technology requires the capability to learn from customer interactions, i.e. self-improving machine translation. This can be a difficult goal to achieve without compromising privacy considerations.

In this paper[1], we will describe the main components of the Language I/O solution that enable translation quality improvements, without compromising on data privacy considerations.

## 2. System overview

Figure 1 contains the key pieces in our workflow. Language I/O customers use a variety of customer relationship management systems (CRMs) like Salesforce, Zendesk, and Oracle Service Cloud. Agents can use the chat, social messaging, and ticketing (e-mail) solutions to communicate to customers whenever they get in touch with the company. When an agent receives a message in a foreign language, it will be automatically displayed in the agent's own language, and she will be able to communicate with the customer to solve the issue. We can add a disclaimer for customers to know they are reading machine translated text if needed.

Language I/O takes several steps to create a seamless translation experience for both the agent and the customer. First, the integration with CRMs is essential so that agents and customers do not need to use a third-party software. We provide machine translation as a feature in the CRM interface directly to minimize training requirements and interface switching costs.

Second, the best machine translation engine will vary depending on the content type, language pair, and customer, among others. Language I/O solution selects the best engine without any customer intervention so that the best possible output is achieved. Currently, we support Google, Microsoft, Amazon, DeepL, and Systran. We select which engine is best suited for a customer by analyzing agent feedback on translation quality over time. By gathering this feedback, we are able to adjust the machine translation engine to adapt to customer needs, without needing to collect sensitive chat transcripts. All of our engine integrations are vetted to ensure that the vendor does not store customer translation data exactly in the same way as we do. Language I/O has a no-trace policy in place.

Third, our self-improving translation solution learns from conversational content to ensure the key terminology is properly translated. The main issue in customer support usually comes when key terminology is not translated as the cus-
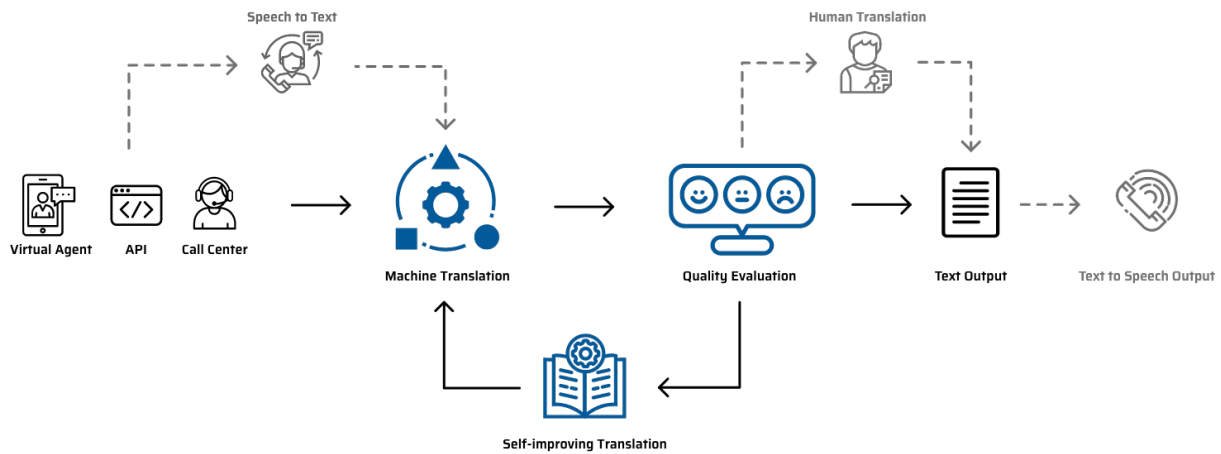
**Figure 1**: System Overview

tomers need. Our self-improving glossary is able to identify and extract terms that could impact translation comprehension. We present those terms to our customers in case further consideration is needed. We take multiple steps to ensure that the self-improving glossary avoids analyzing sensitive information, while still presenting relevant data for customers to improve their glossaries. See Figure 2 for details.

Finally, tools to estimate the machine translation quality are needed to allow customers to route tickets to human translation when the quality is not at the level that ensures understandability and an efficient resolution of the customer issue. For this step, we leverage a unique proprietary solution that is in the process of being patented. Therefore, more details cannot be disclosed yet.

## 3. Value proposition

There are five main characteristics why our customers use Language I/O.

The first is data security and confidentiality. Language I/O is compliant with the European general data protection regulation (GDPR) and ISO27001-certified, which ensures the highest degree of data protection. We do not store chat

transcripts. Additional certifications will be achieved this year.

The second is the seamless integration with CRM systems. Machine translation is available with no effort in their system of choice. If we do not support a CRM, our API provides our customers with the ability to integrate our solution into any bespoke system for both text and speech content.

The third is how we accelerate time to market. Our solution is up and running in less than 24 hours with minimal effort from our customers. We turn their monolingual agents into multilingual brand ambassadors in very little time and without training required.

Fourth, our technology improves over and reduces management overhead thanks to our active learning layer (self-improving glossary and translation technologies). The more customers translate with us, the more their quality will improve over time.

The end result is an expanded and improved international reach for our customers, where agents become even more productive over time as our technology improves.
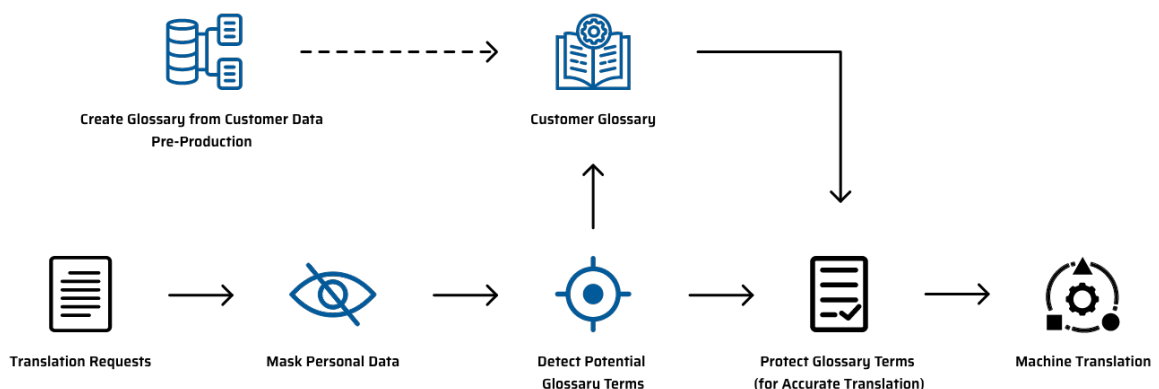


**Figure 2**: Self-Improving Glossary Process