

# guildlink medicinesinformation

It's so important that patients understand what medicine they're taking and how to take it. GuildLink ensures consumers have the latest information—and now, thanks to Appen's text-to-speech conversion services, that they also have it in audio format.

## Powering the Better Use of Medicines

Every prescription medication in Australia requires accompanying “consumer medicines information,” commonly referred to as a CMI. It describes what the medicine does, how to take it, possible side effects, and lots more. Traditionally, the CMI has been a paper leaflet. The trouble with the leaflets is that the information on them changes frequently—sometimes multiple times a year—and it's difficult to get the updated information to consumers.

GuildLink, an Australian pharmacy software company, solves the problem by storing, managing and distributing CMIs electronically. It is the pre-eminent provider of up-to-date medicine information for consumers, health professionals and other distributors.

“For paper CMIs to be updated, it requires manufacturers to recall the medication and replace the leaflet. This process is very time-consuming and expensive. It would be difficult at best for medicines already distributed to pharmacies, and practically impossible for medicines in consumers' homes,” explains Anna Paonne, key account and business development manager for GuildLink.

Established in 2000, GuildLink set out to improve the availability of the CMIs and make sure that consumers receive the latest, most accurate information with every prescription. Now wholly-owned within the Pharmacy Guild of Australia's corporate group, GuildLink's online database includes CMIs, product information



## About Appen

Appen is a global leader in the development of high-quality, human-annotated datasets for machine learning and artificial intelligence. With over 20 years of experience, expertise in more than 180 languages, and access to a crowd of over 1 million worldwide, Appen partners with global companies to enhance their machine learning-based products.

(PI) and medicine images. Using GuildLink's online software, pharmaceutical companies can easily make updates whenever new information becomes available. GuildLink publishes the medicine information on its Medicines.org.au website and distributes the CMI to pharmacies throughout the country electronically within 15 minutes of the update.

"We also provide the CMI in a range of versions, including large-print that pharmacists can provide at the point of supply, as well as web-friendly and audio versions that can be emailed," says Paonne.

The audio CMI is where Appen comes in.

## Improving CMI for Everyone

Keeping CMI current and distributing updates to pharmacies and health-information providers in near real-time is a huge advance. However, GuildLink also recognized the need for audio CMI to meet the needs of consumers who can't use the printed information for a variety of reasons—including impaired vision, a non-English-speaking background, and learning disabilities such as dyslexia.

"For the same reason audio books are popular, some people just find it easier and more enjoyable to listen to the information instead of reading a big document," says Paonne. "We've found that the audio files are a better solution for a lot of people."

## Converting Text to Speech

To create audio CMI, GuildLink needed to find a partner to convert text to speech quickly and accurately. GuildLink chose to work with Appen because of the company's reputation for linguistic and technical expertise, specifically providing high-quality speech and language processing services.

## Appen at a Glance



Expertise in over **180** languages and dialects



Access to a curated crowd of over **1 million**



**20+ years** of experience providing high-quality, human-annotated data to support machine learning for speech, search, eCommerce and more

The text-to-speech conversion process takes place via a number of steps. First, to ensure accuracy, Appen works with GuildLink to create a custom lexicon, or dictionary, of spoken words. Appen starts with a standard Australian English lexicon, and then adds terms to tailor it to a specific project. The CMI's from GuildLink include a lot of medical terms, as well as the names of specific drug products—called “out-of-vocabulary items.”

Once the lexicon is complete, it's time for text processing. For this step, GuildLink sends the batch of CMI's to Appen as XML files. Appen converts them to plain text via multiple conversion and substitution steps—for example, fully spelling out any terms that have been abbreviated or condensed to acronyms, formatting complex numbers, handling punctuation, and the like.

Next up is audio processing. Here, Appen has created a custom script that breaks up the text into smaller lengths and feeds them to a text-to-speech (TTS) engine along with the latest version of the lexicon. The TTS engine creates a concatenated audio output, which means it joins pre-recorded pieces of audio together to make whole words and phrases.

Finally, Appen converts the output into an MP3 format and sends the files back to GuildLink for posting and distribution.

After the initial engagement, the process is largely the same. GuildLink keeps its custom lexicon current by sending Appen a list of words it needs added each month along with a recording of someone pronouncing them properly. Similarly, every time a pharmaceutical company sends a new CMI or updates an existing one, GuildLink sends the new text to Appen for text and audio processing. Drug manufacturers approve the pronunciation of all medicine brand names and active ingredients to ensure accuracy.

“The service that Appen provides has been instrumental in helping us power the better use of medicines,” says Paonne. “We've really enjoyed working with them.”

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## Blazing Trails

Thanks to the Appen TTS engine, GuildLink was the first company in the world to provide audio CMI and is still one of the only ones doing it. “There’s an increase in demand for accurate and current medicines information and being able to provide the information in multiple ways has helped alleviate that,” says Paonne. “Appen’s text-to-speech conversion has been pivotal in helping us provide more information in more ways and helping patients understand what they’re taking.”

GuildLink’s pioneering service has led to partnerships with several Australian government-sponsored websites that use the information in the company’s database. Those include the Therapeutic Goods Administration site, and other distributors of medicine information.

But the company doesn’t want to stop there. “To further improve accessibility, we’d like to look into translating the CMIs into multiple languages in the future,” says Paonne. “It’s so important that consumers have high-quality, accurate information they can understand. Our philosophy is the more information you give people, the better.”

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