FONDAZIONE BRUNO KESSLER
MAGAZINE

COVIBOT: the chatbot that provides answers on vaccinations, testing and isolation

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The Trento Province Healthcare System (APSS) and Fondazione Bruno Kessler, as part of the TrentinoSalute4.0 digital health competence center, worked hard during the months of the pandemic to give life to Covibot, a chatbot visible from the APSS website that can answer questions about the vaccination campaign and respond to the many requests that are still being received on isolation, quarantine, case contacts and testing.

160 Faqs, thousands of alternative questions and over 100,000 actual user requests were used as training. To become what it is today – a chatbot that automatically responds to user requests with an accuracy of over 90% – Covibot has "processed" a huge number of questions. The Trento Province Healthcare System (APSS) and Fondazione Bruno Kessler, as part of the TrentinoSalute4.0 digital health competence center, worked hard during the months of the pandemic to give life to Covibot, a chatbot visible from the APSS website that can answer questions about the vaccination campaign and respond to the many requests that are still being received on isolation, quarantine, case contacts and testing. Covibot was published on an experimental basis in April and after a two-month "running in" (actual questions from users are essential in bot training), it has been online in its final version since late June.

In times of crisis, the demand for information from users grows, who increasingly need clear references and quick answers. Traditional interface channels with citizens are not always able to satisty the "hunger for knowledge" and keep up with the many requests (partially because the physical restrictions imposed by the pandemic have actually shifted the flow of requests from

physical help desks to telephone and digital channels). And it is thanks to the practical application of artificial intelligence that help desks, Relations with the public Offices and toll-free numbers can find a precious ally. The success and dizzying growth in instant messaging systems has led to radical changes in people's communication preferences. In this sense, chatbots, messaging services that mimic human conversations, represent a practical application of artificial intelligence in the service of users' needs, capable of providing answers quickly and logically.

Covibot is the result of a long system training process, both in terms of content and technical interventions. Basically, the Apss-Fbk project that involved in particular the **"Future Media" research unit** led by **Claudio Giuliano** went through three stages.

- the **first step**, which involved training, started from the **over 136 questions** published on the Apss website and reformulated into **over three thousand training questions**.
- **Phase two** took into consideration real user questions instead to make the chatbot experience even more realistic. As much as we can put ourselves in people's shoes and outline their information needs, there still remain unexplored areas and cognitive gaps to be filled. The real feedback provided by user experience was therefore strategic to make the chatbot's answers even more accurate and allowed to create from scratch dozens of Faqs that added to the knowledge base of the virtual assistant. In this phase, the training questions were over 8 thousand and were found to be essential: the phase-two training has in fact made it possible to reach a level of answer **accuracy** of almost 90%. In this phase, the working group that trained the assistant worked hard to define in which cases the chatbot should refrain from responding, in order to avoid as much as possible "wrong" answers that are too risky.
- Finally, **phase three** saw some IT adjustments and the deployment of the final box dedicated to the chatbot on the Apss website. As for the type of questions, most of them concern vaccinations (second dose rescheduling, type of vaccine, green certification, etc.), but there are also questions on quarantine and isolation and obviously those relating to travel abroad. There are also several generic health-related questions (doctor change, health card, exemptions, etc.) currently considered out of target (but to which the chatbot still responds by suggesting an answer or a site to visit/a number to call). In this sense, it is interesting to try to imagine a use of the bot also in a beyond Covid, looking with hope at a post-pandemic future.

The Covibot project is the only one of its kind in Italy and was developed in the context of the TrentinoSalute4.0 joint laboratory (which sees Apss, Fbk and the Autonomous Province of Trento work side by side): it is the tool for cohesion between the health planning target, the innovation needs expressed by the provincial healthcare system and the opportunities offered by research and new digital technologies.

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https://magazine.fbk.eu/en/news/covibot-the-chatbot-that-provides-answers-on-vaccinations-testing-and-isolation/

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- Podcast con Claudio Giuliano, FBK - Future Media : https://www.spreaker.com/user/ts4.0/chatbot-vaccini-trento

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