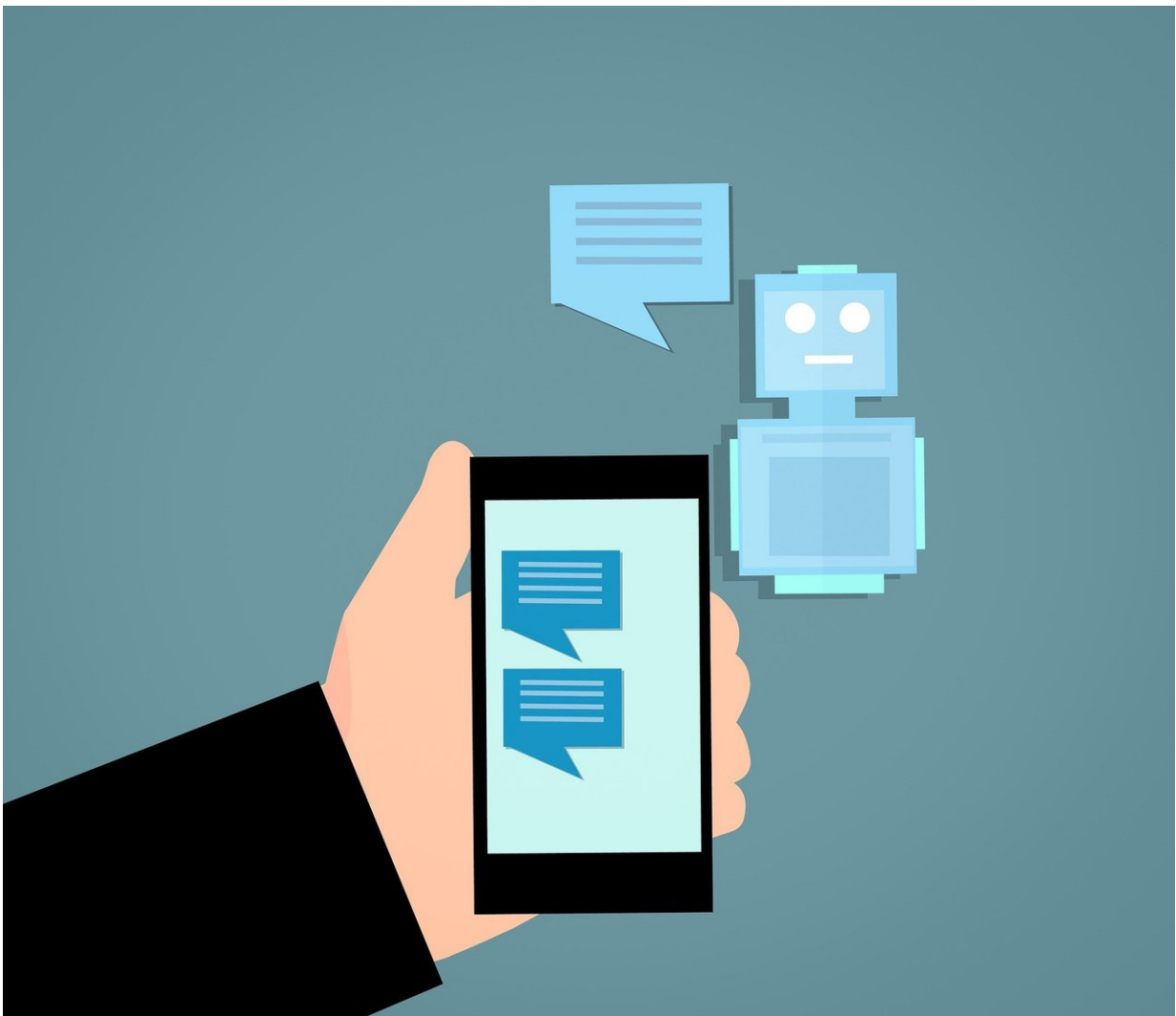


Digital assistants created for e-commerce adapt themselves to each shop's needs

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The pandemic has taught us that almost all companies have to sell on the internet. Bots are a technology that facilitates e-commerce. They are digital assistants that can answer customer queries about products that are sold or help to locate them, as well as supporting customers in the purchasing process. "In whatever language; and moreover, chatbots never get tired: They're available 24 hours a day, 365 days a year," said Jordi Cabot, the Universitat Oberta de Catalunya (UOC) researcher who created Xatkit, a company specialized in their development. This technology has existed for some time in big companies and is now also helping improve the digital competitiveness of SMEs. Indeed, the introduction of bots is expanding: this type of artificial intelligence already generates over 40% of the traffic on the internet.

Xatkit is a new UOC spin-off which offers pre-trained bots for e-commerce. Once installed in the shops, they read the products that are sold and are automatically set up to begin to help the customers who arrive. They are also prepared to continue learning by themselves. "Our bots can do any task that a human salesperson would do, from recommending products or showing offers to notifying the shop when clients ask for a product that they are not currently offering," said Cabot.

Beyond e-commerce: digital assistants using text or the phone

Digital assistants do not just simulate human conversations on chat windows (so-called chatbots), but can also be used to answer telephone calls or comments made on websites or social media in any language. At present, Xatkit creates bots that can understand and speak in English, Spanish and Catalan.

The technological improvement of bots means that these assistants can currently engage in "complex conversations and process management

tasks, processing customers' requests," explained Jordi Cabot. This technology allows customer service costs to be optimized. Cabot, a member of the research faculty at ICREA and leader of the research group SOM Research Lab of the UOC's Internet Interdisciplinary Institute (IN3), who developed Xatkit with Gwendal Daniel, a [researcher](#) from his group, indicated that the key to the development of digital assistants is that they have a specialized platform to define their functionalities and guarantee the quality of the training of the bot, testing and monitoring the behavior in order to improve its effectiveness.

Bots created with open-source software

The Xatkit team works with [open-source software](#), making it easy for clients to set up the digital assistants. Its platform is committed to integrating state-of-the-art technology in processing and understanding natural language to optimize the quality of the conversations. In addition to understanding what the client says, Xatkit summarizes and automatically translates texts, and also analyzes the feelings of the buyers. "The bot can figure out whether the client is annoyed and adapt its answer to the situation," explained Jordi Cabot.

From research to entrepreneurship

The initiative of the UOC researchers to develop conversation bots began as a research project but, unlike other research, "we thought that, in view of the subject and the innovation behind it, it could help many organizations and have a bigger social impact," indicated Cabot. Thus, the creation of this new spin-off from the UOC's research activity allows the research group's technological expertise on digital assistants to reach the market. "Xatkit takes advantage of the state-of-the-art technology that we generate in the research to develop more innovative solutions and the research team learns from the application of the technology in

real cases, thanks to the creation of the company," said the researcher.

"We recommend combining the role of researcher with that of entrepreneur, because this improves the quality and impact of the research," according to Cabot and other researchers in an article published for the 8th International Virtual Workshop on Software Engineering Research and Industrial Practice. Faced with the lack of more investment by industry in R&I, the experts said that as researchers they can "become the partners that companies need, and thus moreover bring the ideas of the research to the market."

The researchers are committed to promoting open resources, strengthening the triangle of collaboration between research, SMEs—as technology suppliers—and end clients—which could be big corporations -, or as a fruitful relationship which provides real cases of technological development. "If as researchers we don't find the appropriate SME to collaborate with our research, we create it, like we did with Xatkit," they concluded.

Spin-offs from UOC research activity

At present the UOC has four spin-offs. Before Xatkit, it created Immersium Studio, specialized in the development of immersive technology (virtual, augmented and mixed reality); Care Respite, with the Universitat Autònoma de Barcelona, specialized in dependent people monitoring technology for carers; and Open Evidence, an international quantitative consultancy that promotes operating strategies and models for decision-making processes through data-based computational intelligence.

The Xatkit project won the jury award at Spin UOC 2021, the UOC's annual entrepreneurship, innovation and knowledge transfer program, promoted by the Hubbik platform.

More information: Jordi Cabot et al, All Researchers Should Become Entrepreneurs, *2021 IEEE/ACM 8th International Workshop on Software Engineering Research and Industrial Practice (SER&IP)* (2021). [DOI: 10.1109/SER-IP52554.2021.00019](https://doi.org/10.1109/SER-IP52554.2021.00019)

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