

## Repositório ISCTE-IUL

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Deposited in *Repositório ISCTE-IUL*:

2023-02-09

Deposited version:

Publisher Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Crespo, M., Pinto-Martinho, A., Cardoso, G. & Andrade, W. (2022). Journalism for voice-activated assistants and devices. In Tina Bettels-Schwabbauer, Nadia Leihs, Gyula Maksa, Dominik Speck, Annamária Torbó (Ed.), *New skills for journalists: Comparative perspectives from Europe*. (pp. 171-182). Pécs: Transylvanian Museum Society.

Further information on publisher's website:

<https://eda.eme.ro/bitstream/handle/10598/33083/Letoltes14-Journalism.pdf?sequence=1&isAllowed=y>

Publisher's copyright statement:

This is the peer reviewed version of the following article: Crespo, M., Pinto-Martinho, A., Cardoso, G. & Andrade, W. (2022). Journalism for voice-activated assistants and devices. In Tina Bettels-Schwabbauer, Nadia Leihs, Gyula Maksa, Dominik Speck, Annamária Torbó (Ed.), *New skills for journalists: Comparative perspectives from Europe*. (pp. 171-182). Pécs: Transylvanian Museum Society.. This article may be used for non-commercial purposes in accordance with the Publisher's Terms and Conditions for self-archiving.

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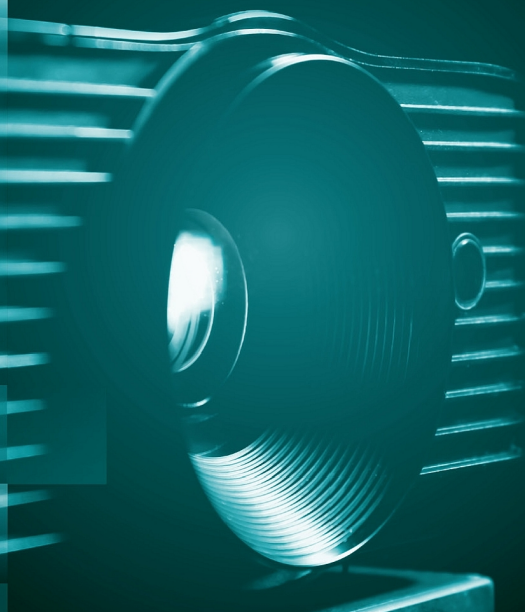
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**TINA BETTELS-SCHWABBAUER,  
NADIA LEIHS, GYULA MAKSA,  
DOMINIK SPECK, ANNAMÁRIA TORBÓ (eds.)**

NEW SKILLS FOR JOURNALISTS

COMPARATIVE PERSPECTIVES FROM EUROPE



LETŐLTÉS

**LETÖLTÉS 14.**

TMS Studies in Media and Communication

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**COMPARATIVE PERSPECTIVES FROM EUROPE**

© Erdélyi Múzeum-Egyesület, 2022

Published by the Transylvanian Museum Society, 2022

Editor-in-Chief: Annamária Biró

Language Editors:

Marcus Denton and Derettens OÜ

János Nagy (University of Pécs)

Series Design and Technical Editing: Tipotéka Labs

It was produced in the F&F Printing House of Gyergyószentmiklós

Manager in Charge: Enikő Ambrus

**Descrierea CIP a Bibliotecii Naționale a României**

**New Skills for Journalists : Comparative Perspectives from Europe /**

ed.: Tina Bettels-Schwabbauer, Nadia Leihns, Gyula Maksa,.... - Cluj-Napoca :

Erdélyi Múzeum-Egyesület, 2022

Conține bibliografie

ISBN 978-606-739-216-6

I. Bettels-Schwabbauer, Tina (ed.)

II. Leihns, Nadia (ed.)

III. Maksa, Gyula (ed.)

070

654

The publication of this volume was supported by the EFOP-3.4.3-16-2016-00005 project titled “Modern university in a modern city: value-orientation, openness and inclusive view in a 21st century education institution”

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## Journalism for Voice-Activated Assistants and Devices

*Miguel Crespo, Ana Pinto-Martinho, Gustavo Cardoso, Wanessa Andrade (ISCTE – University Institute of Lisbon)*

Speech was human's first great tool for communication. By developing sounds capable of creating meaning for a group, human beings were able to exchange important information, such as threats to the group. Writing has emerged only very recently in human history: about 5,500 years ago (Harari 2019). The opposite was true in the history of the Internet: writing came first, then sound. IBM created the first voice recognition tool in 1961, the Shoebox, which recognized 16 words and digits<sup>39</sup>. The Shoebox was experimental, and never marketed.

Slowly over the next fifty years other companies made progress in word recognition. But the big leap only arrived in the 21st century, with Apple's launch of Siri in 2011<sup>40</sup>. From then on, these voice tools gained the definition of voice assistants, as they were able to listen to, respond and perform tasks through voice command. Since then, voice assistants have become popular and easily accessible to the global population. Currently five major voice assistants are available in Western markets: Siri by Apple (available for smartphones and Smart Speakers Apple Home), Alexa by Amazon (only for Smart Speaker), Google Assistant by Google (available for smartphones and Smart Speakers Google Home and Google Nest), Bixby by Samsung and Cortana by Microsoft. Cortana is a voice assistant for those who have Windows 10 installed on a PC.

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39 [https://www.ibm.com/ibm/history/exhibits/specialprod1/specialprod1\\_7.html](https://www.ibm.com/ibm/history/exhibits/specialprod1/specialprod1_7.html)

40 <https://voicebot.ai/voice-assistant-history-timeline/>

There are almost eight billion people in the world. Around 66% of them have a smartphone, and most use a device with Android or IOS, i.e., have the availability to use voice assistants. According to some of the most recent surveys, considering all the devices, 45% of Internet users worldwide use voice commands and voice search<sup>41</sup>. In almost all age groups, men use voice assistants more than women. The exception is the 45-54 year group in which women and men use such devices equally often. In Germany, the usage figure is at 23.9%, in Romania 23.7% and in Portugal is 21.5%<sup>42</sup>. There is no data available on the use of voice assistants in Hungary and the Czech Republic.<sup>43</sup> Despite the disparities in devices and brands, the operation of voice assistants is similar. A keyword or question activates the system that turns voice into text, then into data, and then returns the path to answer the user's request in voice (CDEI 2019). Voice assistants use artificial intelligence, machine learning and algorithms to accurately meet the user's request.

Voice assistants are not available in all languages. Data updated in January 2021 shows that Apple's Siri voice assistant supports 21 languages (Arabic, Cantonese, Danish, Dutch, Finnish, English, French, German, Hebrew, Italian, Japanese, Korean, Malay, Mandarin, Norwegian, Portuguese [Brazil], Russian, Spanish, Swedish, Thai and Turkish). Siri also supports a variety of dialects for Chinese, Dutch, English, French, German, Italian and Spanish.<sup>44</sup> Google Assistant supports 44 languages on Android's smartphones<sup>45</sup>. But the Google Home smart speaker is available for fewer languages: 13 (Danish, Dutch, English, French, German, Hindi, Italian, Japanese, Korean, Norwegian, Portuguese [Brazilian], Spanish and Swedish). Google Home

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41 <https://wearesocial.com/digital-2021>

42 <https://wearesocial.com/digital-2021>

43 The reason may be that voice assistants are not available in all languages.

44 <https://wearesocial.com/digital-2020>

45 <https://venturebeat.com/2019/12/12/google-assistant-can-now-interpret-44-languages-on-smartphones/>

supports 4 globally dominant languages English, French, Spanish, and German as well as their dialects in 13 national setting – English (6): Australia, Canada, India, Singapore, UK, US; French (2): Canada and France; Spanish (3): Mexico, Spain, US and German (2): Austria, Germany. Amazon’s voice assistant Alexa is available in 8 globally dominant languages (English, French, German, Hindi, Italian, Japanese, Portuguese [Brazilian] and Spanish) and supports dialects of 3 of the 8 – English (5): Australia, Canada, India, UK, US; French (2): Canada and France; Spanish (3): Spain, Mexico, US (GlobalMe 2021).

## Voice assistants for news

The usage of voice-activated smart speakers for news remains low. The proportion of users listening to smart speakers for news is declining, despite the devices becoming more mainstream. Less than 40% of owners of voice-activated smart speakers access news via them in the US (35%), UK (39%), Germany (27%) and South Korea (25%) (GlobalMe 2021).

The issue of platform power is likely to become increasingly important for news publishers as Google and Amazon look to provide more aggregated news services via their voice assistants. But many publishers may not be interested in investing in new services, as there is no motivation in building value for other corporations’ platforms, which do not offer any paths to news monetisation. It is becoming more common to find research exploring how artificial intelligence (AI) can help communication professionals find and tell better stories (Prodigioso Vólcan 2020). Media outlets know how to safely develop products to be watched on TV, listened on radio, or read on Internet websites. But what is the best news product to be activated by voice assistants? How to ensure your news stories are considered relevant and appear as the first search result of these voice assistants?

These questions need topic specific solutions. First, in the context of newsrooms adopting AI, there is a widely recognized need to train journalists, as well as editors, to give them resources and encourage them to debate the ethics of AI use. Secondly, for the usage of AI to report, produce, and distribute content requires not only the knowledge of AI concepts but also specific technical skills to promote an organisational culture willing to use this advanced technology. Thirdly, for implementing AI-based solutions with success there has to be a strategic vision, sufficient economic investment, interdisciplinary team building and alliances with educational and technological organisations.

One of the first companies to experiment with the use of artificial intelligence through voice assistants was *The Evening Standard* in London in 2017. In the same year, the *BBC* launched, in partnership with Amazon, their first full voice skill for Alexa. The following year *The Guardian* launched, together with Google, the Guardian Voice Lab.

Algorithms are fundamental for voice assistants. When a person uses a search engine, a list with several websites appears. The algorithm defines these websites, and the user may choose from all options appearing on the various results pages. But in the case of smart speakers, the voice assistants take a much longer time to present the same results because each time the algorithm defines a single result for the user.

Using voice adds new layers of complexity because we tend to speak in unstructured text. One of the things that makes resolution especially complicated for a large AI system like Alexa is that each of Alexa services uses a distinct name — or slot — for the same data (Webb 2020). Also, as voice interfaces proliferate in people's lives, news publishers and other organisations face a new strategic consideration: Is our content optimized for voice search? And, looking further into the future, how should we index our content for future forms of interaction? A new marketing discipline is growing: Voice Search Optimization (VSO) is the new Search Engine Optimization (SEO), as companies – including news media outlets – will need to consider how their content is delivered via conversational interfaces.

## Concerns

There is also another issue to be resolved by the companies that create voice assistants: privacy. There are numerous reports of cases, in which voice assistants have self-activated (Incrível n.d.). Researchers in Germany have also discovered more than a thousand other words and phrases that can unintentionally trigger Google Assistant, Alexa, Siri, and other assistants, in addition to their traditional activation words (NewVoice 2020).

Thus, trying to understand the reasons why news consumers do not (yet) use smart speakers is highly relevant (Figure 1). Even if in 2020 one third say they are simply uninterested for no reason, for another 33% the main reason not to have a smart device is that they are “concerned the device will record what I’m saying”. A quarter are happy with their smartphone functionality, 11% considers prices too expensive, and 7% hope to get one, with most of them hoping to do so in the next 12 months.

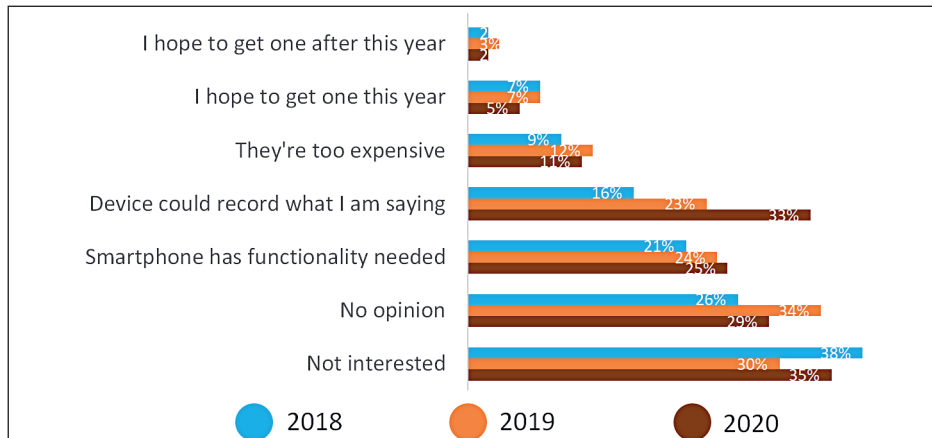


Figure 1: Reason consumers do not yet have a smart speaker  
Source: Authors based on VoiceBot.ai (2020)

## The impact of COVID-19

The COVID-19 pandemic appears to have caused an increase in the use of voice assistants. An international survey by We Are Social and Hootsuite (Kemp 2020) shows that, during the initial stage of the pandemic, the time spent using smart speakers grew by 14%. In general, 45% of Internet users aged 16 to 64 use voice interfaces each month (Figure 2). High usage countries are those with large populations in Asia like India (60%), Indonesia (56%) and China (55%). The Portuguese speaking countries have a lower than the worldwide average usage (45%), with Brazil (40%) and Portugal (22%).

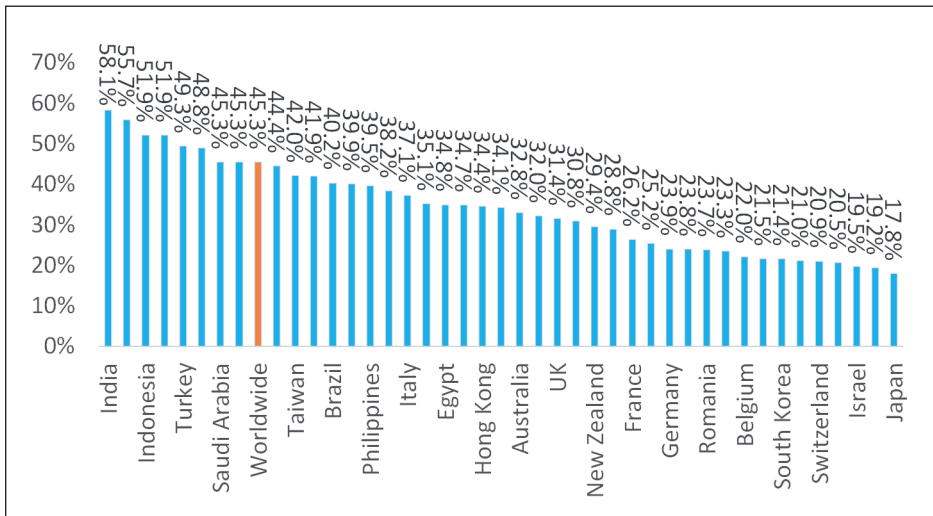


Figure 2: Use of voice search and voice interfaces by Internet users aged 16 to 64, January 2021.

Source: Authors based on Kemp (2021)

Research statistics forecast an increase in the consumption of voice-activated content, especially, by smart speakers. These devices should also consolidate their position as another platform for news distribution. But a platform that poses new challenges for the media, where algorithms and business models of third parties influence what content will be presented to the consumer (see Newman 2018 and Turow 2020, for analyses of how a further rise of voice-activated devices may reshape journalism).

It will be necessary to train journalists to understand the logic of this platform so they can prepare content that can easily get to people. It is also necessary to discuss a code of ethics surrounding the Internet of Things. The popularization of voice assistants and smart speakers also depends on the deployment of the 5G network across all countries, on the expansion of languages recognized by mainstream voice assistants and on better training of the existent natural language processing systems (NLPs) to recognize accents and ways of speaking that are different from the cultured norm or from the ways a language is spoken at large commercial centres.

## INTERVIEW RESULTS

As voice-activated assistants and devices are a new technology and unavailable in many languages, our interviewees have more doubts than certainties about the current and future role of this technology in journalism. But our interviewees do say journalists should appreciate three key aspects of the technology. First, to understand the operating mechanisms of production and the challenges for consumers. Secondly, to be prepared to develop specific content, because data from other countries that already use smart speakers on a larger scale show that it is a platform with high growth in penetration and use, and so very promising in terms of content production. Thirdly, to understand the challenges each language poses to interaction between users and the devices' artificial intelligence.



We talked to journalists and professionals involved in the production of content to be activated by voice commands. Adam Javůrek is an analyst at *Český rozhlas* (Czech Radio), Zsuzsanna Dömös is a technology journalist working for independent news website *24.hu* in Hungary, Vlad Andriescu is editor-in-chief at a *start-up.ro* website specialising in news about digital start-ups in Romania and Miguel Lajes is business owner and digital innovator at Euroconsumers, an NGO defending consumer rights in five countries, four EU nations, one of which is Portugal, and Brazil. In the field of journalism, only *Český rozhlas* offers a skill for smart-speakers. Euroconsumers is developing skills in Portuguese, but is still in the testing phase. The aspect all interviewees report is that the main challenge in producing and distributing content through smart speakers is language (of the countries under study in this book, only German and Portuguese [from Brazil] are available.)

“Currently no smart speaker can speak Czech. But even controlling in English is not easy because the phrase ‘Czech Radio’ is heard as ‘check radio’ and therefore the query is not understood at all. The developers suggest that we should rename our skill, but of course it does not make any sense to have a different name than what the users will use (i.e. the name of our institution).”

Adam Javůrek, analyst, *Český rozhlas*

Other difficulties pointed out by the interviewees relate to the platforms’ business model, as Miguel Lage describes: “It’s not very clear [about] the ROI [Return on Investment] of these apps. Direct monetization is difficult and traffic volumes are still very low.” Other specialists reinforce this idea:

“I think that as a business model this area is not still there yet and cannot be monetized properly, with a proper ROI. In terms of algorithms, I don’t believe it to be so challenging. But for this to work you have to have an audio department to record all the content.”

Vlad Andriescu, Editor-in-Chief, *start-up.ro*

Regardless of the business model of the platforms, the interviewees point out that the production of content should be thought of in a different way than it is done nowadays. “If multimodal is not available (e.g. no screen) then content needs to be carefully designed just for the aural channel”, Miguel Lage suggests. The specificities of interaction through conversation are at the top of the priorities, for developers:

“On the one hand there is the possibility of interactivity, on the other hand users don’t want to make complicated choices and ideally don’t want to choose too often either - it’s about finding the right combination of simple and clear open-ended questions and long-term personalisation.”

Adam Javůrek, analyst, *Český rozhlas*

One of the clues that interviewees have looking at markets where smart speakers work in the local language is that podcasts are suitable content to be produced and consumed through these platforms.

“The best content for smart speakers would be news snippets for a morning digest or a late evening round up, also short podcasts of ten to fifteen minutes. Recipes would also be an appropriate type of product if the smart speaker is close to the kitchen, for example.”

Vlad Andriescu, editor-in-chief, *start-up.ro*

Content producers experience the dilemma of starting to develop products to get ahead of or waiting for the popularisation of the platform in their respective countries before it looks like to become a profitable business. Everything requires investment: time, knowledge and money. “That’s the million-dollar question: Up until now we are just expecting to grow the traffic and drive that traffic to other touch points where we apply our conversion funnel”, Miguel Lage concludes. Adam Javůrek (analyst, *Český*

*rozhlás*) agrees: “We’re not at the stage where we’re thinking about monetization yet. Redistribution itself is not costly and we would only consider the return on investment if original content was being created.” Vlad Andriescu (editor-in-chief, *start-up.ro*) anticipates other ways to support development costs: “The only way I can see it as feasible is through branded content projects and ad inserts for these snippets, which could be supported by a long-term commercial partner.”

## Education and Training for Smart Speaker Journalism

Our interviewees acquired their qualifications through daily experience and exchange of information with professionals in the field of technology, rather than through formal education. They understand that preparing journalists for this reality while still in college is fundamental.

“I think that universities should look into the modern ways of creating content and adapting their curricula. We need to prepare students for a real multimedia environment, where a journalist is also a social media specialist, with basic understanding of delivering content on different kind of social media, but also knowing how to shoot video adapted for the Internet.”

Vlad Andriescu, editor-in-chief, *start-up.ro*

The interviewees suggest combining youth with academic studies as the best solution for the development of products and content for these devices.

“I think students who are digital natives have it easy today in understanding how to deliver content. Because they know how to deliver their personal content and just have to adapt it a bit to the rules of journalism. (...) A student could know how to deliver great

Tik Tok content, which can be journalistically relevant. So I would say that they should leverage the digital experience they have and adapt it to journalism.”

Vlad Andriescu, editor-in-chief, *start-up.ro*

Our respondents predict that this technology will become popular in all regions of the globe:

“I think that people will still consume written information, but they feel the need of curated content and audio and smart speakers can give them that feeling that they are receiving basically a news bulletin for the day, with all the relevant issues.”

Vlad Andriescu, editor-in-chief, *start-up.ro*

The new technology also brings some concerns to our respondents, which need to be discussed by companies and universities alike.

“According to reports, smart speakers are a growing market, but there are a number of barriers to adoption, for example privacy concerns, I think companies have to work on that. Experts advise publishers to make existing content accessible and findable through voice. I think the next step is to offer differentiated audio content that works across multiple platforms. Early adopter companies will move in that direction.”

Zsuzsanna Dömös, technology journalist, *24.hu*

So, at this moment, content development for smart speakers and voice assistants, in the countries of origin of our interviewees, still raises concerns on what and how to do it and how to solve major language barriers and problems. Difficulties in identifying the best kind of content, how to interact with users and how to monetize the content are obvious. But the differences in consumption through voice interfaces, compared with written interaction on other media channels, is also a major challenge

for producers to master. In terms of knowledge and skills needed to work in this field, the specialist interviewees point to a solid background in communication, but with applied skills in multimedia production, some technological expertise and intense digital media use.