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Smart speakers and the news in Portuguese: consumption pattern and challenges for content producers

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Master In World Internet Studies

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*To the women who helped me become the woman I am.*

# Acknowledgement

I like the analogy of life with houses. The foundation, the bricks that build walls. Many people have been bricks in my journey here. The "noes" are as important or more important than the "yeses". Starting with the foundation, I thank my family for all the love they gave me. Gestures that taught me more than words. But I cannot fail to acknowledge my mother, who fought so hard for my education, the greatest legacy she gave me. From my beloved grandparents, I want to register my eternal gratitude, especially to Almir and Elvira. In the last 16 years, my foundation has been reinforced. Love, partnership, friendship and adventure. Bio, thank you. The walls of my life were also built with the help of many hands: school and university teachers, childhood and adulthood friends, work colleagues, interviewees. I think of all of them at this moment. I thank by name those, who have directly contributed to this work: Vera Iris Paternostro, Jô Mazzarolo, Eduardo Peixoto and the interviewees of this research. And as the roof of the house, reference to the completion of this project, I thank my co-supervisor, Professor Miguel Crespo, without whom there would not be this theme, and my supervisor Professor Doctor Tiago Lapa, who was instrumental in building this research. The house is still under construction. There are always works and reforms to be done.

# Resumo

Os assistentes de voz popularizados pelos smartphones são agora o motor de um aparelho que está entrando nas casas nos últimos anos: os smart speakers. Desde 2018, Esses equipamentos estão disponíveis em português do Brasil. Tais aparelhos são também uma nova plataforma para distribuição e consumo de notícias. Como a plataforma define o conteúdo que será entregue ao usuário? Quais os desafios que os produtores de conteúdo enfrentam? Como o usuário acessa essas notícias? Para tentar encontrar as respostas a essas questões, fizemos uma revisão de literatura, um ponto de situação do mercado através de relatórios empresariais, desenvolvemos um inquérito online com usuários de smart speakers e também entrevistamos produtores de conteúdo. As respostas mostram que há influência dos algoritmos e do modelo de negócio. Um desafio extra para os produtores de conteúdo em português é a própria língua. Os sistemas dos assistentes de voz ainda apresentam dificuldade de compreensão de palavras e expressões em português para os usuários. Este trabalho poderá ser útil para produtores de conteúdo, especialmente de língua portuguesa, encontrarem maneiras de chegar ao público.

Palavras-chave: colunas inteligentes, assistente de voz, PNL, algoritmo, jornalismo, consumo de notícias.

# Abstract

The voice assistants popularized by smartphones are now the driving force behind a device that is making its way into homes in recent years: smart speakers. Since 2018, these devices are available in Brazilian Portuguese. These devices are also a new platform for news distribution and consumption. How does the platform define the content that will be delivered to the user? What challenges do content producers face? How does the user access this news? To try to find the answers to these questions, we conducted a literature review, a market situation point through business reports, developed an online survey with smart speaker users and also interviewed content producers. The answers show that there is influence of algorithms and the business model. An extra challenge for Portuguese content producers is the language itself. The voice assistant systems still have difficulty understanding words and expressions in Portuguese for users. This work may be helpful for content producers, especially Portuguese-speaking ones, to find ways to reach their audience.

Keywords: smart speaker, voice assistant, NLP, journalism, algorithm, news consumption.

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## Introduction

With the popularization of smartphones, a new tool has gained prominence among users: voice assistants. One no longer much type to search for what one needs to look up on the Internet. All you have to do is ask, and the voice assistant will answer the question and present the results on the search engines. When we look back in history, it was a long road to get to the current level. It started with the IBM Shoebox in 1961. It recognised 16 words and digits (IBM, n.d.). It was an experiment, which was never marketed. But the big leap, in fact, only arrived in the first decade of the 21st century, with Apple's launch of Siri in 2011 (VoiceBot.ai, 2018).

A decades-long process evolved more rapidly thereafter. In 2014 Amazon launched Alexa, a voice-assistant for a new device (Falck & Schnedler-Sørensen, 2018): a small speaker with a microphone installed without a keyboard, to be operated only by the user's voice. This new equipment model has been defined as a smart speaker and each brand baptises the device with a specific name (Echo dot, Google Home, Google Nest, Apple Home, etc.). Smart speakers can answer questions, play music, "read" news, activate appliances, trigger reminders, and more.

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., they 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 (We are social, 2021).

The smart speaker market that had been growing year by year has been boosted by the Covid-19 pandemic. The global market is estimated to grow from \$4.66 billion in 2020 to \$6.98 billion in 2021 at a compound annual growth rate (CAGR) of 49.8% (GlobeNewsWire, 2021). The pandemic also caused an increase in online news consumption (Jornal da USP, 2020).

This expanding platform is yet another medium for distributing content, including journalistic content. *With this work we want to understand how users use smart speakers to access news and how content producers can stand out and be accessed by users.* Many challenges are posed in this relationship between producers and consumers of content mediated by smart speakers. Algorithms, artificial intelligence (AI) and natural language processing (NLP) are some of them.

For example: when the user activates a voice assistant on the smartphone to get the news of the day, he is presented with a page with results from various media companies. If the same question is asked to a smart speaker, the equipment will present in audio at most 4 results. And already here the first question: *How does the device decide what content to show?*

It is a technological issue, but the different service providers have different ways of delivering the content to the user. And it is also a human issue since it is the organisations that define the settings and what the algorithm will prioritise. Our research addresses several

technological issues, but what interests us is the effect that technology has on the human being.

A second question is: *was the device able to understand exactly what the user was looking for?* Considering that what interests us is human-machine interaction, we want to understand to what extent the devices and their functionalities correspond to the expectations and intentions of those who produce contents and those who consume these contents through smart speakers. If this interaction between people and machines has unanticipated or unintended results.

Currently there are 5 voice assistants in the western market: Siri by Apple (available for smartphones, Smart Speakers Apple Home and Mac Pc), Alexa by Amazon (only for Smart Speaker), Google Assistant by Google (Available for smartphones, Smart Speakers Google Home and Google Nest and all devices with Android system), Bixby by Samsung and Cortana by Microsoft. Cortana is a voice assistant for those who have Windows 10 installed on a PC.

The product launches first took place in English. 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.

Google Assistant supports 44 languages on Android's smartphones. But the Google Home smart speaker is available in fewer languages: 13 (Danish, Dutch, English, French, German, Hindi, Italian, Japanese, Korean, Norwegian, Portuguese (Brazilian), Spanish and Swedish.). Google Home supports different English, French, Spanish, and German dialects (English dialects (6): Australia, Canada, India, Singapore, UK, US/ French dialects (2): Canada and France/ Spanish dialects (3): Mexico, Spain, US/ German dialects (2): Austria, Germany).

Amazon's voice assistant Alexa is available in 8 languages (English, French, German, Hindi, Italian, Japanese, Portuguese (Brazilian) and Spanish. Alexa also supports different dialects in English, French, and Spanish. (English dialects (5): Australia, Canada, India, UK, US/ French dialects (2): Canada and France/ Spanish dialects (3): Spain, Mexico, US) (Globalme, 2021).

Portuguese is the official language of 9 countries (Portugal, Brazil, Angola, Mozambique, Guinea-Bissau, Equatorial Guinea, Cape Verde, East Timor and São Tomé and Príncipe). It is also one of the official languages of Macau, an autonomous region in China, a former Portuguese colony. There are 261 million Portuguese speakers in the world, almost 4% of the world population (Instituto Camões, n.d.). The first to accept commands in Portuguese was Google Home, at the end of 2018. A year later, Alexa by Amazon, also started "speaking" Portuguese. Up to the time of this paper, the smart speakers only operate Brazilian Portuguese (Globalme, 2021).

In Brazil 5.5% of the population aged between 16 and 64 have smart home devices, a category that includes smart speakers. In Portugal it is 4.6% (We are social, 2021). The data from other Portuguese-speaking countries is negligible. Therefore, in our research we will focus on the comparison of the linguistic challenges for these two countries. As the devices only work in Brazilian Portuguese.

Another question arises when we talk about language. Every country has its differences, with different accents and vocabularies, which vary according to each region and social and economic conditions. Is Natural Language Processing (NLP) training prepared for these differences?

Smart speakers could, in theory, serve the inclusion of visually impaired and illiterate people since they can access information by voice command. But inclusion comes up against economic issues (who can buy and afford the Internet), digital education (who knows how to use it), and infrastructure (an Internet network prepared for the Internet of Things). As we will see below, there are several sides to the digital divide and the dilemma of technological innovations.

To answer the research questions, we conducted a literature review, a market state-of-art through business reports, developed an online survey of Portuguese-speaking smart speaker users, and also interviewed Portuguese-language content producers. Platform algorithms and business model define the content that will be delivered to users. An extra challenge is the Portuguese language itself. We found that platform algorithms and business model define the content that will be delivered to users. An extra challenge for both producers and users is the Portuguese language itself, since the voice recognition systems still present a relevant percentage of errors.

# Chapter 1

## Literature review

### 1.1 The expansion of the internet from people to things.

Despite different 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. Voice assistants use Artificial Intelligence, Machine Learning, Natural Language Processing and Algorithms to try to accurately meet the user's request. Later on we will discuss the function of each of them.

Smart speakers are a typical example of an Internet of Things (IoT) application: a physical object that is connected to the Internet that can interact with people and can be connected to other physical objects to perform tasks (Magrani, 2018). Through smart speakers, users can control the lighting in their houses, surveillance cameras, window blinds, go shopping, and still ask and listen to the news of the day. These are some of the possibilities. There are others. The Internet of Things is part of the so-called Web 3.0. The first generation of the Internet, which emerged in the 1980s, connected people in a static way. You could read content, but not interact with it. In the early 2000s, the Internet enabled interaction between people. As Magrani (2018) says, "the web became a two-way street". It was the time of the explosion of blogs and social networks. The user is no longer just a consumer, but also a producer of content, giving rise to the concept of prosumer.

The change of use and creation of new tools from web 1.0 to web 2.0 took a decade, whereas the interval of discussion about changes from web 2.0 to web 3.0 took only a few years. In 2006 the New York Times journalist John Markoff used the term web 3.0 for the first time (Markoff, 2006). We are in the era of the portable internet via smartphones, where it is possible to customise the content offered, advertising agencies can know how engaged users are with a particular content, and where data and objects are interconnected. And if before the generated content was only meant to be understood by humans, now it is also meant to be interpreted by machines.

	Web 1.0	Web 2.0	Web 3.0
<b>Communication</b>	Broadcast	Interactive	<b>Engaged / Invested</b>
<b>Information</b>	Static / Read-only	Dynamic	<b>Portable &amp; Personal</b>
<b>Focus</b>	Organization	Community	<b>Individual</b>
<b>Personal</b>	Home Pages	Blogs / Wikis	<b>Lifestreams</b>
<b>Content</b>	Ownership	Sharing	<b>Curation</b>
<b>Interaction</b>	Web Forms	Web Applications	<b>Smart Applications</b>
<b>Search</b>	Directories	Keywords / Tags	<b>Context / Relevance</b>
<b>Metrics</b>	Page Views	Cost Per Click	<b>User Engagement</b>
<b>Advertising</b>	Banners	Interactive	<b>Behavioral</b>
<b>Research</b>	Britannica Online	Wikipedia	<b>The Semantic Web</b>
<b>Technologies</b>	HTML / FTP	Flash / Java / XML	<b>RDF / RDFS / OWL</b>

Figure 1.1: Web 3.0 & Beyond. Source: Fandom.com (n.d.).

In Web 1.0, information was accessible through sites with ready-made, static content. The user could not make changes. In web 2.0, any user could share information, at the time of the emergence of Wikipedia. With Web 3.0 comes the semantic web. When searching for information, for example, Semantic Web makes deductions to arrive at the result that seems to be most relevant to the user.

The Semantic Web allows machines to understand documents and data from other machines and software, not human speech, and writings. It's this feature that the smart speaker uses to fetch answers to users' questions and commands. The term semantic here may cause some confusion.

The "semantics" in Semantic Web services is embodied in the code that implements those services in accordance with the specifications expressed by the relevant ontologies and attached informal documentation. The "semantics" in semantic interpretation of natural languages is instead embodied in human cognitive and cultural processes whereby linguistic expression elicits expected responses and expected changes in cognitive state (Halevy, Norvig, & Pereira, 2009, p. 10).

The ability of a machine to understand human speech and writing is related to Natural Language Processing, which is the field of artificial intelligence that studies the use of computers to understand, process, and generate human languages. We will discuss this a bit further.

## 1.2 Internet transformations in the context of industry 4.0

The term Industry 4.0 emerged in 2011 to characterise a fourth industrial revolution. The first industrial revolution, in the 17th century, was driven by mechanical looms. The second, in the 19th century, was marked by the creation of production lines. In the third, in the 1960s, the transformation of analogue processes into digital processes began. The fourth industrial revolution has the Internet of Things as its foundation (Pereira & De Oliveira Simonetto, 2018).

Technological innovations have had a direct impact on the production and consumption of news, which has evolved from printed paper to smart speakers. Understanding this process of operation and choices of smart speakers help explain from a technological point of view our first research question: how does the device decide what content to show?

Smart devices, such as smart speakers, are the most direct example of the Internet of Things: objects that are connected to other objects via the Internet and are able to exchange information in order to perform a task. The evolution of the Internet of Things also depends on the deployment of 5G. Technological changes in the Internet network have allowed for increased data transmission speeds.

Mobile communication began in the 1980s. In the following decade, with the implementation of the second generation (2G), it began to transmit data through GPRS technology (General Packet Radio Service). But it was only in the 2000s, with the third generation of mobile telephony (3G) that the broadband appeared with the application of UMTS technology (Universal Mobile Telecommunication System) which expanded the capabilities of data transmission, popularising the mobile Internet. It was already possible to make video calls, for example. And in the following decade, 4G offered improvements to this mobile broadband, making it easier to view videos and other heavy files over cell phones (Dahlman, Parkvall, & Skold, 2020).

Because of this increasing connectivity between objects and the Internet, the demand for wireless Internet has reached unprecedented levels. The challenge now is not only to improve data transmission capacity, as was the case with previous generations. "The necessary underlying networking operations, ranging from management, identity, security, mobility and others, need to evolve in a more scalable manner to support the explosion of devices, and truly become an Internet of Things" (Rodriguez, 2015, p. 32).

To make all the necessary changes and accommodate the fifth generation (5G) wireless Internet network, telecom companies will have to use higher frequencies on the radio waves. This is causing major discussions in some countries because it interferes with the operation of other systems, as is the case in Brazil.

The 5G network in Brazil is expected to interfere with the operation of satellite dishes. One of the frequencies of the fifth-generation broadband will be 3.5 GHz, close to that in which satellite TVs operate. Brazilian government data show almost 21 million houses have a satellite dish to receive a television signal in the country (Agência Brasil, 2021). The Brazilian

government has established that everyone will be obliged to change their satellite dishes. Almost 9 million low-income families will have the new equipment paid for by the funds coming from the auction that will define the company that will take care of the 5G deployment in Brazil. The new antennas will use another frequency, called Band KU. The forecast is that 5G will come into operation in Brazil in July 2022 (Olhar digital, 2021a).

In Europe, the 5G deployment plan was launched in September 2016. The goal is that by 2025, the fifth generation of wireless Internet will be operating throughout the territory of the European Union (European Commission, 2021). Internationally, the deployment of 5G has also been marked by the dispute between the United States and China. The United States accused China of using the company Huawei (a company that owns technology capable of 5G deployment) to steal data and monitor citizens around the world (New York Times, 2019). By March 2021 5G Internet was in operation in Australia, Germany, Japan, Saudi Arabia, the United Kingdom, the United States, and South Korea (Olhar Digital, 2021b).

The popularisation of the Internet has brought some terms like the algorithm to the fore. By algorithm we mean a sequence of steps to solve a problem. They are not formulas or mathematical equations (Mueller & Massaron, 2017). The algorithm works like a cooking recipe in which the order of each ingredient and the way to make it are expressed. It “is a procedure that takes any of the possible input instances and transforms it to the desired output” (Skiena, 2008, p.3). In view of the immense amount of data available on the Internet (Big Data), the algorithm helps to reduce costs and simplify tasks.

Before being technology, the algorithm has a human aspect first. To perform tasks the algorithms need to be trained, which is done by humans. And biases are caused precisely because human beings have biases.

Humans rely on filters to avoid information overload, and these filters are also a source of bias because they prevent people from actually seeing things (Mueller & Massaron, 2018: 36).

Therefore, algorithms cannot be said to be neutral.

Our biases are embedded in these algorithms, often so deeply as to render our biases virtually invisible. This invisibility leads to the presumption that algorithms are neutral. However, algorithms often reflect the very biases they are presumed to ignore (Jackson, 2018, p. 56).

In the case of how smart speakers' algorithms act, for example, in organising the ranking of the most accessed sites to speed up responses. If someone asks about the news of the day, the algorithms help to create a list with the most accessed sites that can be useful for the answer to that question.



But how does the algorithm decide which news to show in order to fulfill the user's request? This process also uses Artificial Intelligence and Machine Learning. Artificial Intelligence is related to natural human capabilities: getting and processing new information, working with information in different ways, interpreting the result of that manipulation, being able to separate facts from beliefs, noticing relationships between data and information. As Mueller & Massaron (2018) point out, AI has nothing to do with human intelligence, but it is nothing more than a simulation of the mode and processing of human intelligence.

Artificial intelligence is a subpart of computer science, concerned with how to give computers the sophistication to act intelligently, and to do so in increasingly wider realms. It participates thoroughly in computer science's passion for abstraction, programming and logical formalisms, and detail – for algorithms over behavioural data, synthesis over analysis, and engineering (how to do) over science (what to know) (McCarthy, 1998).

Despite being a subpart of computer science, artificial intelligence, is increasingly an interdisciplinary theme involving the social sciences and even philosophy. Like algorithms, artificial intelligence starts from human training. These are definitions outlined by individuals and organisations and, for this very reason, may contain biases. One area of study in Artificial Intelligence that is fundamental to our understanding of how smart speakers work is Machine Learning.

Machine Learning is the area that makes Artificial Intelligence learn things from data. "Machine learning is all about determining patterns — analysing training data in such a manner that the trained algorithm can perform tasks that the developer didn't originally program it to do." (Mueller & Massaron, 2016: 25). Machine Learning involves the question of how to build computers that automatically improve through experience (Jordan & Mitchell, 2015).

As an example of Machine Learning, let's take the case of the organisation of rankings in information search engines. While algorithms organise rankings based on the number of hits, AI along with ML use context to make this ranking. If someone asks: when will the football team play? The machine will know that the person is searching for the football team of his country because the AI learned to cross-reference information such as location, search history of the person, access to correlated subjects, etc. Then, it will produce a link ranking from this information crossing. There won't be a result for this search based only on the amount of other accesses to the same question.

Just as there is discourse about discriminatory algorithms and artificial intelligence Machine Learning also has their biases (Associação Brasileira de Lawtechs & Legaltechs, 2020). It is the case of Nikon cameras that in photos of Asians point to closed eyes, even when they are open (Time, 2010). Or case in point, that of a facial emotion analysis program that associated negative categories with black athletes (The Conversation, 2019).

Leavy (2018), who conducted an analysis on the gender bias of Machine Learning, highlights that diversity in the development of technologies would help accelerate solutions. Natural Language Processing is the field of Artificial Intelligence that studies the use of computers to understand, process and generate human languages. It can be said that the first tests in this area were done by Alan Turing in 1950. Since then, with the evolution of computing, the processing of the human voice has been increasingly perfected. And it is still only the beginning.

NLP is divided into different levels of processing (Liddy, 2001): Phonology, Morphology and Lexical. The first is about the interpretation of sound. It considers phonetic and phonemic rules and prosody (the intonation and rhythm of speech). Morphology is the level that deals with morphemes, the small units of meaning of a word, from the understanding of prefixes and suffixes, for example. The lexical is the level that interprets the meanings of the word itself, taking into account the context of application. It is for this interpretation that, at the lexical level, syntactic, semantic, discursive, and pragmatic knowledge are required.

These are starting points for understanding how language processing works in Western languages. In languages like Chinese and Japanese, for example, a word has no meaning in itself. A morphological or lexical analysis is not possible without taking into account the other nearby words within a given context (Indurkha, & Damerau, 2010).

Turning to the language processing of Western languages, the researchers point out that it is important that the system is always updated and keeps up with the evolution of the language as, over time, words gain new meanings, new uses (Halevy, Norvig, & Pereira, 2009).

In voice assistants, NLP works as follows: the system works in 3 steps. First, it converts speech to text. The system processes the set of sounds and transforms them into words. After that, the system processes the words and triggers the other areas of Artificial Intelligence to search for the answer. Finally, it transforms the words into sound to respond to the user (USC Marshall, 2017).

To work accurately the NLP system needs a large database. The training of the machines is done with thousands of audio samples. Then the researchers transcribe the audio. This combination of text and audio enables the machines to make the association between words and sounds. "The phrases that occur most frequently become a pattern for an algorithm to learn how a human speaks. But an AI can only recognize what it's been trained to hear. Its flexibility depends on the diversity of the accents to which it's been introduced" (Paul, 2017).

### **1.3 The biases of Natural Language Processing**

More than 1 billion people in the world cannot read and write, equivalent to 13.5% of the world's population (The World Bank, 2021). Voice assistants could be very useful to those people who cannot type. But there are two challenges: one is access to the Internet and existing digital divides, and the other is the recognition of the language of these people by the machines.

More than 3 billion people, equivalent to 40.5% of the world's population, still do not have access to the Internet (We are social, 2021). And because they are people with little education whom usually do not speak the words correctly, do not know how to conjugate verbs correctly or even formulate some questions well.

They live in areas where the vocabularies are not part of the official language dialect. Moreover, there is the issue of prosody and accents. Usually these are people who don't live in the big economic centres. And research has shown that NLP training is done more with voices from the big urban centres, based on the cultured norm of the language. (Lima, Furtado, Furtado, Almeida, & Silva, 2019).

In addition to the issues noted above, there is also the challenge of immigrants. In the United States, for example, a country with immigrants from all over the world, where English is the second or third language, these people naturally speak English with an accent. And immigrants often have difficulty being understood by voice assistants (Paul, 2017).

Brazil is also a country made up of immigrants. There, the Portuguese language gained words and sounds different from Portugal, as we will see later. These immigrations and the economic situation of the different regions of the country are a challenge for voice assistants. The country still has 11 million illiterate people (6.6% of the population) (Agência Brasil, 2020). This amount is greater than the population of Portugal (10.27 million inhabitants) (The World Bank, 2019). The country is divided into 5 regions. The south and southeast are the regions with the best economic and social indicators. The North and Northeast have the highest poverty rate and the lowest education levels (IBGE, 2020). Brazil has a great variety of accents and vocabularies. Each of the country's 26 states has its own way of speaking, even with words used only in that state.

In 2018 a group of Brazilian researchers conducted an experiment with voice assistants involving 20 people from different regions of the country, gender, and education. Half of the group interacted with Apple's Siri and the other half, with Google Assistant.

Words that are frequently pronounced in an "incorrect" way in Brazilian Portuguese were purposely inserted in the sentences. They were: privilégio, beneficente, bicarbonato, iogurte, problema, torácico, cérebro, entretido, brócolis, crocante. The purpose of these "traps" was to catalyse situations in which AVI would need to infer the word considering that it might not have been pronounced in the formal standard of the Portuguese language (Lima et al., 2019).

The researchers found that the relationship with the voice assistant was more fluid with participants in the South and Southeast regions. With the participants from the North and Northeast regions there were more repetitions and even commands that were not carried out. They then concluded that “the process of smartphone assistant training, for Brazilian Portuguese, may be geared towards voices of individuals from the richest region of the country (South and Southeast regions)” (Lima et al., 2019). Voice assistants thus reproduce the linguistic prejudice that exists in Brazil.

The further away from the normative Portuguese, especially if we consider pronoun and verb inflection, the more stigmatized is the speech, in Brazil. Deep changes in morphological productivity are very much associated with interlinguistic contact, which brings us to the huge, enslaved population that is the base of the Brazilian people. Thus, colonial Brazil would have, with its spoliation productive structure, laid the foundations for social dialect in Brazil (Pagotto, 2005).

#### **1.4 The Portuguese language: differences between Brazil and Portugal**

The Portuguese language arrived in Brazil with Portuguese colonisation (1500-1822) and was introduced into the country by Lusitanian people from different regions and at different times. In Brazilian territory, Portuguese coexisted with the native languages of the indigenous people (Tupi, Guarani, etc.), with those of the Africans from different countries, who were taken to Brazil to be slaves, and also with those of other people who came to dominate part of the territory as the Dutch (1630-1654).

For more than 2 centuries, Brazil had two languages: the General Language, in which the base was Tupi, and the Official Language, which was Portuguese, which was in the official documents. In 1757, the Portuguese crown prohibited the use of the general language, and Portuguese became the only language allowed in Brazilian territory (Guimarães, 2005).

Because of all these influences, Brazil developed its own rhythm of speech, with vocabularies that also exist only in Brazil, giving Portuguese a Brazilian face (Orlandi, 2005). But it is important to highlight that legislation in Brazil says that the official language is Portuguese, a position ratified with the participation of Brazil in the Orthographic Agreement of the Portuguese Language, which came into force in 2009. Even with the agreement some differences were respected.

Examples of lexical differences:

Bus - Brazil: ônibus / Portugal: autocarro

Mobile Phone - Brazil: celular/ Portugal: telemóvel

Mouse (computer) - Brazil: mouse/ Portugal: rato

Screen - Brazil: tela/ Portugal: ecrã

Address - Brazil: endereço/ Portugal: morada

Even when words have the same spelling, there are differences in the syllables with secondary accent, the so-called pretonic (Abaurre & Galves, 1998).

Cavalry - Brazil: cavalaria/ Portugal: cavalaria

Knowledge - Brazil: conhecimento/ Portugal: conhecimento

Application - Brazil: aplicação/ Portugal: aplicação

The pronunciation of R and L at the end of words.

Sea - Mar. Brazil: /rr/; Portugal: /r/

Evil - Mal. Brazil: /u/; Portugal: //

Despite some different vocabulary and morphological preferences from both countries, the written text is readable for both Portuguese and Brazilians. The biggest difference is in phonetics and prosody (Lucchesi, 2012). This is to say that a voice assistant, to be efficient in either country needs to be trained with the respective differences. And currently, Smart Speakers' voice assistants only have applications for Brazilian Portuguese. And as we pointed out above, it is still a technology that needs improvement to better understand Brazilians from different regions and different social classes.

## **1.5 The challenges of the Portuguese language in the English-dominated web world**

The phonetic structure of the two languages is different. English has 36 phonemes: 24 consonants and 12 vowels. By combining vowels, up to 13 diphthongs can be formed. Portuguese has 37 phonemes: 23 consonants and 14 vowels. Vowel combinations can form up to 9 diphthongs (Eupedia, n.d.). And each language has its own consonantal encounters, such as "TH" in English and "NH" in Portuguese, for example.

We can say that English is the language of the Internet. Much of what has been developed in the field of computing has been done by native English speakers. And today, English is the most widely spoken language on the Internet. 60% of websites are in English. Only 1.3% of websites have content published in Portuguese, 11th place (We are social, 2021).

During the colonisation period, the colonisers used language as an instrument of control and unification of territories. On the Internet, for some scholars, English is the colonising language of the so-called globalisation, and here the territory is not physical but dispersed throughout the world by means of technology (Lopes, 2008).

But some argue that technology can also be a tool to promote heterogeneity. The concept of glocalisation (union of the words globalisation and local) advocated by Robertson (2018)

includes the idea that globalisation is actually a collection of many local aspects. “Globalization - in the broadest sense, the compression of the world - has involved and increasingly involves the creation and the incorporation of locality, processes which themselves largely shape, in turn, the compression of the world as a whole” (Robertson, 2018: 40)

In the case of smart speakers, with the inclusion of several languages in the platforms' systems, this diversity of local content will become even greater. But for this to be possible, the companies that own the platforms need to refine the NLP of non-English languages. Systems using NLP need a large database to evolve. Naturally, with much more content circulating in English, the database in this language is going to be bigger. It is not difficult to find on the internet records of cases in which voice assistants did not understand what was asked in Portuguese (UOL, 2020), did not recognise certain words (Ocanova, 2020; Consumidor Moderno, 2019) or could not pronounce them correctly (Olhar Digital, 2019).

But it is a technology that evolves as more people use it, increasing the database of words and sounds. There is an effort, even a commercial one by companies, to be more accessible even to people with some speech difficulty such as stuttering (Pplware, 2021).

### **1.6 The technology that makes things easier and closer is the same technology that can cause more exclusion and new concerns**

The UN considers Internet access a Human Right (Ruggie, 2011), yet we still have 40.5% of the world population, or 3.17 billion people without Internet access (We are social, 2021). 80% of the inhabitants of the least developed countries do not have access to the Internet (ONU News, 2019). In Brazil 25% of the population still doesn't have access to an Internet connection (We are social, 2021).

The term Digital Divide emerged in the United States in the 1990s precisely to refer to areas that did not have access to the Internet. It was later expanded to this issue all over the planet (Bartolo, 2018). It is a definition that relates to geographical space (Pick & Sarkar, 2015).

But Lutz (2019) expands the debate around the Digital Divide. He points out that there are three levels of exclusion. The first is the unequal distribution of access, which is the origin of the term. As he explains, it affects more those living in rural areas, older people and those with lower education. And when these people manage to access the Internet, it is often through mobile phones. A low-quality Internet prevents the use, for example, of smart devices such as smart speakers.

The second level highlighted by Lutz has to do with participation in the production of the content. There is a concentration of this production in the hands of younger and better-off people. Finally, the Digital Divide is also related to the ability to use online tools to achieve offline results. He cites as an example cryptocurrencies, in which the rich get richer and richer.

This third dimension of the digital divide includes the lack of preparation of a large part of the world population knowing how to use the tools available through new technologies. These are people who may even have access to the Internet, may buy internet-connected objects like smart watches or smart speakers, but who don't know how to interpret the countless data generated by them.

Without the ability to interpret, analyze, check, and communicate data correctly, users may end up collecting wrong data, ignoring the right data, failing to apply the data (correctly), or extracting the wrong meaning from it (Van Deursen & Mossberger. 2018)

If in theory smart speakers can be a tool for inclusion of illiterate people, since to use these devices you don't need to read or write, just use your voice, we have two possible obstacles here: recognition of the language itself (as we discussed earlier, NLP systems have more difficulty recognising language that escapes the linguistic and social pattern, and illiterate people naturally escape that pattern) and digital literacy.

Digital literacy is a complex term that encompasses a multiplicity of skills, mind sets and technology. In terms of digital skills, there are numerous definitions and divisions of the required competences (Isaias, Miranda, & Pifano, 2013: 278).

Among the skills required are operational skills, knowing how to handle the equipment, and information skills, which is the ability to know how to search for and interpret data. Clearly illiterate people, for having been deprived of a formal education, have more difficulty in these aspects.

Another point that can cause more exclusion than inclusion is the issue of privacy. There are numerous reports on the Internet of cases in which voice assistants have activated themselves. 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.

A survey of the Smart Speaker Consumer Adoption Report (CDEI 2019) points out that, in the USA, 1-in-3 consumers cite the concerns about privacy as the main reason to avoid smart speakers, and in the Voicebot.ai report (2020), we can confirm that more than 50% US adults state to be moderately or very concerned with privacy, with those numbers rising from 2019 to 2020.

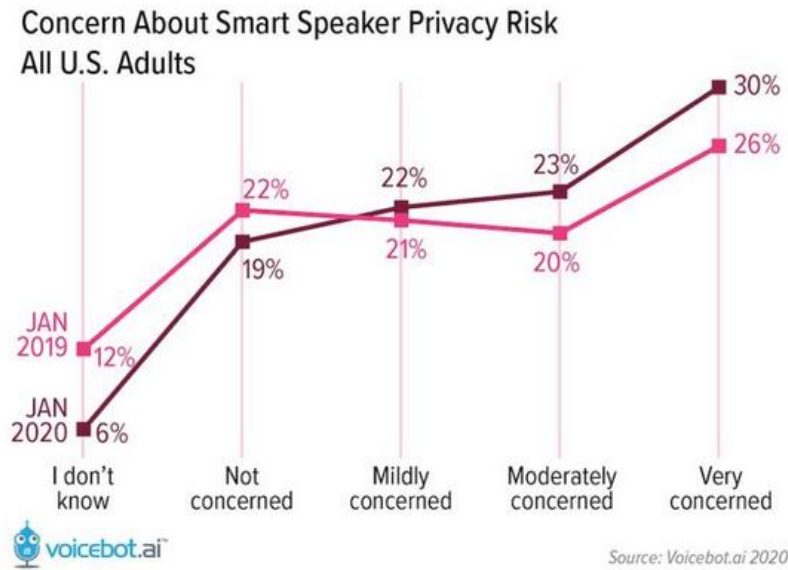


Figure 1.2 : Concern about smart speakers privacy risk in U.S. adults. Source: VoiceBot.ai (2020)

So, it is also very relevant to try to understand the reasons why consumers do not yet have a smart speaker (Figure 2.3). Even if in 2020 one third say they are not interested, for no reason, another 33% state as the main reason for not to having a smart device the fact that they are “concerned the device will record what I’m saying”. One fourth are happy with their smartphone functionality, 11% consider the price too expensive, and 7% hope to get one, most of them in the next 12 months.



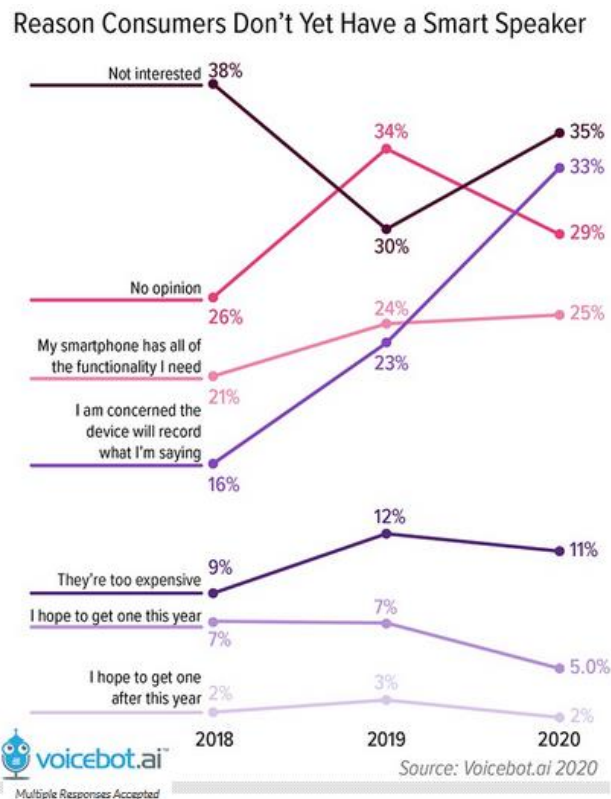


Figure 1.3 : Reason consumers do not yet have a smart speaker. Source: VoiceBot.ai (2020).

Technology always moves faster than regulations. And regulations are still made by economic blocks or countries. Researchers advocate the need to create an international governance to take care of the ethical debate and combat the digital divide, especially in the context of the internet of things.

Weber (2013) highlights the key principles to be considered in an Internet of Things governance: legitimacy and representation, transparency, and accountability. The challenge posed by the author is to find an institution capable of making such international governance possible.

### 1.7 The impact of technology on journalism and news consumption

Ever since when Gutenberg created the printing press in the 15th century communication has been impacted by technology. Books that used to be manuscripts, and therefore had few copies, with the printing press it was possible to increase reproduction. The press itself (as the name suggests) is a child of this invention.

Since the appearance of the first newspapers in Europe during the 17th century, technology has allowed journalism to be organised around a basic premise: the rapid and perceptible transmission of information (Deuze, 2006: 17).

In television, for example, in the not-too-distant past, live transmissions required a great deal of equipment, which made it impossible for the reporting teams to go anywhere. Today, with a small 20 cm long box and cellular chips, it is possible to go live from anywhere with Internet coverage. This is just to cite a small example.

For decades the mass media have had control over the issuance of content. They were a kind of filter of what would reach the public, as the gatekeeper theory defines it. And because they were the main means of access to information, they set the agenda of the issues to be discussed in the streets, a theory that became known as agenda-setting (Wolf & De Figueiredo, 1987).

But the arrival of the Internet has taken this total control out of the hands of the media. With Web 1.0, anyone could publish their texts. Public opinion now has access to information from other sources (Pereira & Adghirni, 2011).

In the case of journalism, this loss of control in the production of information, with so many people posting texts, photos and videos on social networks and blogs, led some researchers to dedicate themselves to answering the question: after all, what is journalism today?

As Traquina (2020) points out, in democratic theory journalism has a dual role: that of spokesperson for public opinion and that of watchdog of political power. Journalists have a code of ethics and a professional culture with a commitment to providing information, not propaganda. The challenge for journalists is to adapt to the new narrative structures. (Singer, 2011).

Until the 1980s the consumption of news took place through the printed newspaper, radio, and TV. With the popularisation of the Internet, more and more people seek news online. And the younger you are, the greater the preference for digital platforms to access news.

In 2020, more than half of all Americans searched for news on digital platforms. Across the planet, two-thirds of the population used smartphones to access news, and the poorer the country, the higher the percentage of use of this platform. Even in the richest countries, the smartphone is already the main platform for accessing news (Letter.ly, 2021).

This has also changed the business model of media production: newspapers that have websites and produce podcasts; TV channels that keep news updated on websites and social networks.

While the Internet offers access to countless sources of information, it also creates what researchers call bubbles and echo chambers. With the segmentation that the internet provides, users are tempted to seek information on sites, blogs and profiles that have an ideological profile to their own (Flaxman, Goel & Rao, 2016). And then there is the influence of algorithms. Based on the user's hits, the algorithm will recommend only other sources of similar information (Zhang, Zheng, & Peng, 2017).

Algorithms and artificial intelligence are changing not only the way we consume, but also the way we produce news. News agencies and media outlets already use AI and algorithm-based tools to produce content. These tools search the Internet for data, cross-reference the information, and make the texts. This is information about earthquakes or fact-checking, for example (Uninter, 2020).

To this new generation of journalism, in which AI and IoT are used in news production and consumption, Barcelos (2019) proposes the concept of Journalism of Things (JoT). The production of news by machines gives journalists room to devote themselves to more critical reporting. But it also raises new debates, given the impact of this technology on the profession and users.

the ethics of objects [and their companies]; the foundation of an Ontology for Things with agency and their almost autonomous communication networks; the hybridization/robotisation of human affectivity, the isolation and harassment of intelligent machines [which has repercussions in the intensification of post-digital intolerance]; the hypervisibility of citizenship and, above all, the sensitization of ways of being, existing and consuming, that is, the body as appropriate data, but recirculated by artefacts and devices that mediatize it without this body/subject even being aware or authorizing it (Barcelos, 2019: 304)

Technologies also take over a function that used to be a human journalist's job: filtering the subjects and deciding what will be published: "Popularity engines, portals and platforms based on a set of predefined values integrated in computer algorithms are also becoming more important as the final gatekeeper" (Bro & Wallberg, 2015: 10).

As we said before there is first of all a human training, but after the training, the machine develops its system through artificial intelligence and machine learning and starts to make decisions without the need for direct human interference. And because they are based on algorithms and artificial intelligence, smart speakers are themselves gatekeepers, since when the user asks the news of the day, for example, who decides what will be shown as that news will be the system itself.

## **1.8 Voice assistants for news**

The use of smart speakers has been growing steadily, as the chart above shows. But in the global market the consumption of news by these platforms is still shy but has also been increasing as shown in the graph below. And it may demonstrate that there is great room for growth in the area of news production for smart speakers.

**PROPORTION THAT USE SMART SPEAKERS FOR ANY PURPOSE (2017-20) – SELECTED COUNTRIES**

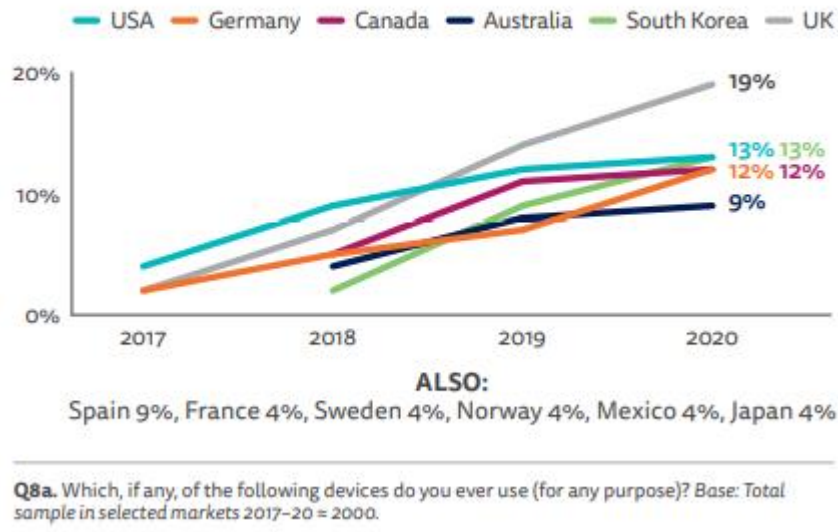


Figure 1.4: Proportion that use smart speakers for any purpose (2017-20) – selected countries.  
Source: Reuters Institute (2020).

As the chart above shows, in three years, the use of smart speakers to access news has grown by 4 percentage points. The Reuters Institute (Newman, 2020) paper also highlights Google and Amazon's investments in new audio and news services. The topic of platform power is likely to become an increasingly important issue for publishers over the next years as Google and Amazon look to provide more aggregated news services in voice.

**PROPORTION THAT USED EACH DEVICE TO ACCESS NEWS IN THE LAST WEEK (2013-20) – UK**

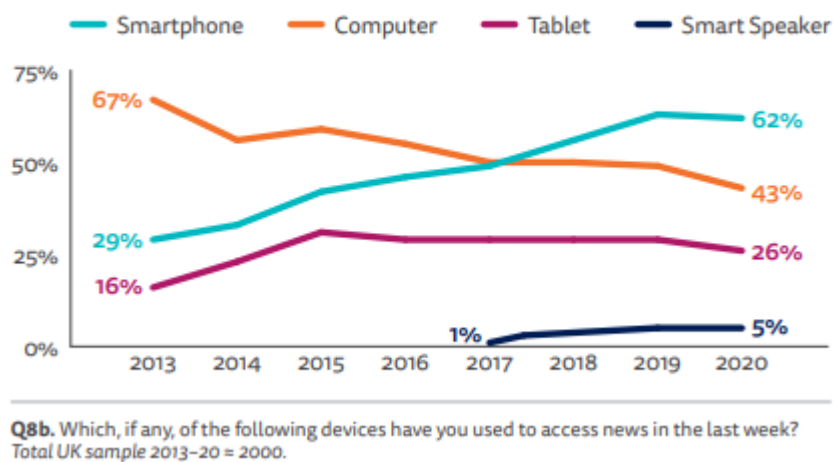


Figure 1.5: Proportion that use each device to access news in the last week (2013-20), UK.  
Source: Reuters Institute (2020).

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 (Newman, 2019).

The adoption of artificial intelligence in newsrooms, either in reporting, production, or distribution of content, requires training, resources, and ethical debate. Training journalists and editors in general concepts related to artificial intelligence and subsequently in specific technical skills is crucial to promote an organisational culture open to the use of this technology.

At the time of writing, there is no study that reveals the advantages and disadvantages from a media point of view of the use of smart speakers in either English or Portuguese.

**1.9 How the COVID-19 pandemic moved the smart speaker market**

The year 2020 was marked by the Covid-19 pandemic. One measure applied in many countries to control the disease was lockdown. People were forced to stay indoors longer, increasing their consumption of online content (Nielsen, 2020). And there was also the impact on news consumption. In the United States, for example, access to online news grew by more than 200% in March 2020 compared to the same period the previous year (Oxford Business Group, 2020). In the table below, we have as an example the impact of lockdown on access traffic to the BBC website in the UK.

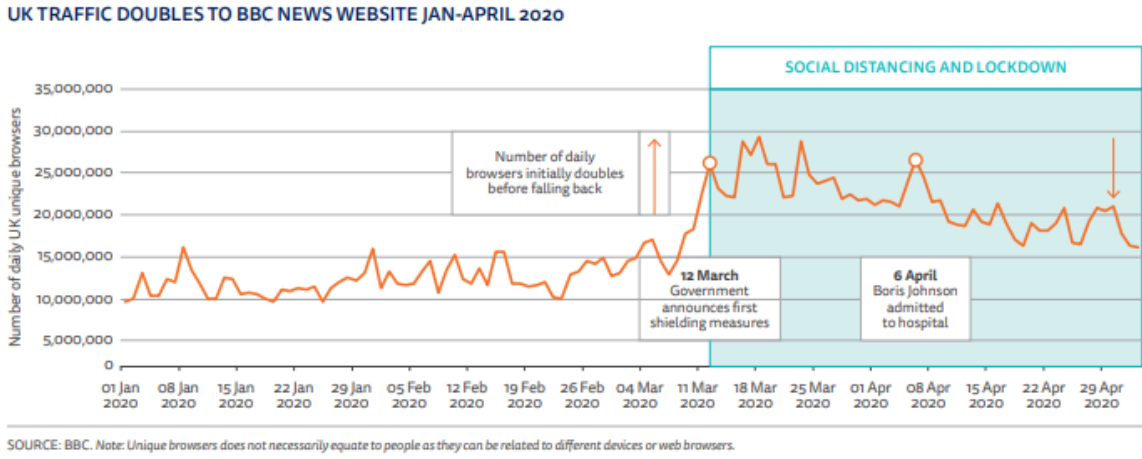


Figure 1.6: UK traffic doubles to BBC news website jan-apr 2020. Source: Reuters Institute (2020).

The Covid-19 pandemic seems to have caused an increase in the use of voice assistants. A survey by We Are Social and Hootsuite (2020) published in July, shows that, during 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 (see Figure 3 below). Asian countries like India (60%), Indonesia (56%) and China (55%) are the ones with higher percentages. The Portuguese speaking countries are below average, with Brazil's use staying at 40%, and Portugal just 22%.

And, according to the new Smart Audio Report, published by NPR and Edison Research (2020; see Figure 1.7 below):

- 36% of U.S. adult smart speaker owners say they are using their device more to listen to music and entertainment since the outbreak, and 52% of 18-34-year-olds say the same.
- 35% of U.S. adult smart speaker owners are listening to more news and information since the Covid-19 outbreak, and 50% of those aged 18-34 say the same.

Usage of voice commands, in general, has increased slightly since the Covid-19 outbreak, with 52% of voice-assistant users saying they use voice tech several times a day or nearly every day, compared to 46% before the outbreak.

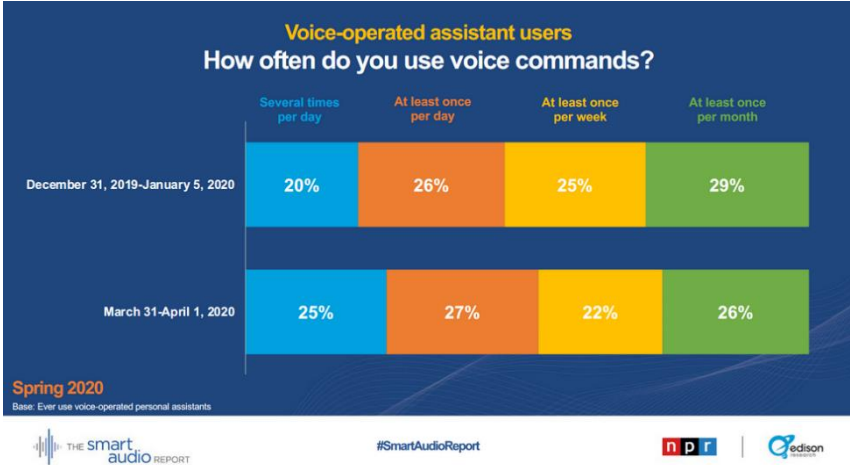


Figure 1.7: How often do you use voice commands? Source: The Smart Audio Report (2020).

## **Chapter 2**

### **Methodology**

We used mixed methods in our investigation because it employs a strategy of inquiry involving either the simultaneous or sequential collection of data and collects both numeric information and text information (Creswell, 2003). Following Creswell, J. & Creswell, on guidance on the mixed method approach, we followed the steps below:

The researcher bases the inquiry on the assumption that collecting diverse types of data best provides a more complete understanding of a research problem than either quantitative or qualitative data alone. The study begins with a broad survey in order to generalize results to a population and then, in a second phase, focuses on qualitative, open-ended interviews to collect detailed views from participants to help explain the initial quantitative survey (Creswell & Creswell, 2017, p. 53)

In this research we used two methodological techniques: an online survey and online thematic analysis. We needed these two techniques to understand how the consumer uses voice assistants, what journalism companies are developing, and to analyse data from technology companies' reports.

To understand the user side, we made an online questionnaire with 32 questions related to the use of the smart speaker devices. We did a convenience sample choice with a call through social networks for those who had any of the devices and who used them in Portuguese. When the person answered positively that they were using the device in Portuguese, they received a link to the survey. Our goal was to get at least 100 people, so that we could have a relevant sample. 112 people participated in the survey.

To understand the content producer side, we conducted interviews by email-due to the pandemic- with representatives of the two largest Portuguese language journalism companies and that are investing in the production of journalistic content for smart speakers: UOL and Globo, both based in Brazil. Since we were unable to detect any media outlet in Portugal that is investing in the production of journalistic content for these devices (not least because it is not yet available in European Portuguese, only in Brazilian Portuguese), we spoke by video conference with a representative of Euroconsumers, a consumer protection company that has clients in Brazil and Portugal. The company is developing projects for both countries to be driven by smart speakers.

We also turned to reports from media outlets that already produce journalistic content for smart speakers in other countries and from companies that specialize in this subject to understand the context of the change of this new platform for news production and distribution.

## 2.1 Online survey

Groves (2004) says: “survey methodology seeks to identify principles about the design, collection, processing, and analysis of surveys that are linked to the cost and quality of survey estimates” (Groves, 2004:30). The author explains that at the beginning this methodology was more connected on improving quality within cost constraints, or, alternatively, reducing costs for some fixed level of quality. But then social studies began to use this methodology to understand behaviour. Social psychology has made a great contribution in this area.

This methodology emerged in the analogue world but gained momentum with the Internet. “The first online surveys were conducted almost 25 years ago. And because of the rapid growth in the online realm online surveys became an increasingly attractive alternative to other survey modes (...) It is not unlikely that in the future the majority of all survey research will be done online” (Evans & Mathur *apud* Jakob & Zerback, 2006, p. 1).

Like other methodologies, the online survey has strengths and weaknesses. As strengths we can highlight the agility, the ease of interviewing people from other countries, the speed of data access and low cost. On the other hand, authors warn about the lack of representativeness for general populations, the selection/bias of web-accessible populations, technological variations, and problems with software (Evans & Mathur, 2005).

The greatest challenge for researchers using this methodology is the definition of the sample of respondents (Evans & Mathur, 2005). Sampling must be representative of the target audience for the result to be reliable (Groves, 2004). Our sample was convenient. We sent invitations through social networks so that people who use voice assistants in Brazil and Portugal can answer the survey. We also interviewed journalistic product developers. Among the tools available, one that seems most appropriate to us is Qualtrics, which has a version available for ISCTE researchers.

With this methodology we analysed the data from the point of view of consumption and production. It is a method that answers the research needed to collect and organize data from news consumers through the voice assistant, as well as from content producers. Only this method could help us to find the keywords for the use of voice assistants and also reveal the norms to be analysed.

## 2.2 Online Thematic Analysis



The data collected by the interviews and online surveys was added to the secondary data (reports) of the voice assistant and content producers for these devices and analysed in the light of the thematic analysis method.

In this method the organisation and the description of the data set are very important. The TA goes beyond counting sentences or words in a text and is concerned with identifying implicit and explicit ideas within the data. The organisation of quantitative and qualitative data (coding) should be categorized to facilitate analysis. It's a method of qualitative data analysis to identify, analyse, interpret, and report patterns (themes) from qualitative data.

A theme refers to a specific pattern of meaning found in the data (...) Specific criteria need to be stipulated concerning what can and cannot be coded within such themes; otherwise, this form of content is highly subjective. Themes are thus patterns of explicit and implicit content. Thematic analyses tend to draw on both types of theme (Joffe, 2012, p. 209).

In our project we needed to accurately identify the keyword patterns that voice assistant users use. We also needed to understand the response pattern of the algorithms. In addition, we looked for the patterns used by companies already developing voice assistant products.

This method, then, is a way identifying what is common to the way a topic is talked or written about and of making sense of those commonalities. What is common, however, is not necessarily in and of itself meaningful or important. The patterns of meaning that TA allows the researcher to identify need to be important in relation to the particular and research question being explored. Analysis to the way a topic produces the answer to a question, even if, as in some qualitative research, the specific question that is being answered only becomes apparent through the analysis. Numerous patterns could be identified across any data set-the purpose of analysis is to identify those relevant to answering a particular or research question (Braun & Clarke, 2012, p. 57).

The other possible qualitative analysis method would be content analysis, but we discard it because the focus of this method is to describe and interpret the content emitted (Bardin, 2004) (Krippendorff, 2018). Our project proposal is to understand the standards (themes) and codes to make a manual, which can point a way for news producers to find the best way to connect with the public. We do not intend to do semantic interpretation. "Thematic analysis is best suited to elucidating the specific nature of a given group's conceptualization of the phenomenon under study" (Joffe, 2012:214).

## **Chapter 3**

### **Results presentation and analysis**

#### **3.1 Content producer point of view**

To understand the challenges and advances in the production of journalistic content in Portuguese for smart speakers we sought out the companies that are investing in this technology. In Portuguese-speaking countries, data shows growth in the consumption of smart speakers in Brazil and Portugal. In the other Portuguese speaking countries, the numbers either do not exist or are irrelevant (We are social, 2021).

We then went in search of media outlets in Brazil and Portugal that are investing in studies or applications for this smart speaker technology. The biggest media company in Latin America is Portuguese-speaking and based in Brazil, it is TV Globo. The company has a history of investment in technology and leadership in the industry. Currently, Globo has a research and product development laboratory for new technologies. Its content is seen by millions of people every day, whether on TV, on the Radio, in the newspaper or on the Internet.

The history of the communication group began in 1911 with the newspaper "A Noite", which no longer exists. In 1925, another newspaper was launched, "O Globo", which is still sold today. In 1944, "Rádio Globo" was launched, broadcasting news and music. TV went on the air in 1965. In 1991, "CBN" radio began, with news only. In the same year the group started cable TV operations. In 1996, the first 24-hour news channel in Brazil, GloboNews, went on the air on cable TV. In the year 2000, the portal Globo.com began to operate, with news and entertainment. Six years later, G1, Globo's news site, was created and was included within the Globo.com portal. In 2015, Globo launched its own streaming service Globoplay (Grupo Globo, n.d.).

From a management and operational point of view the biggest change occurred in 2018, with the launch of the "Uma só Globo" program, to unify all the operations of the communication group and prepare it for the next step: transforming Globo into a media tech (Folha de São Paulo, 2018). The first experiments on voice applications for Google Assistant and for Alexa were made in 2019. In 2020, Globo set up the Digital Audio Products & Services area, just to develop projects in digital audio.

In April 2021, Globo announced a seven-year agreement with Google, through which the Brazilian group will use the resources of Google Cloud, the American company's cloud division. The agreement involves the migration of 100% of the company's data centre to Google's cloud, the application of Google technologies such as artificial intelligence and machine learning in

the creation of new digital products, and the integration of Globoplay in TV sets that use the Android system. The value of the deal was not disclosed (Valor, 2021).

Another Brazilian company that has one of the largest audiences on the Portuguese language Internet is UOL. UOL, an acronym for "Universo Online", was the first content portal in Brazil to go online, in 1996. It is part of the same business group as the century-old newspaper Folha de São Paulo. On its first day it went live with a chat service, a daily edition of the Folha de São Paulo newspaper, the Folha de São Paulo archives with about 250 thousand texts, reports from The New York Times (translated into Portuguese), Folha da Tarde and Notícias Populares, Classificados, Roteiros and Saúde, and IstoÉ magazine (Uol, n.d.).

UOL is a pioneer in several online services in Brazil. In 1997 UOL launched "TV UOL", the first TV made for the internet in the country. In 2000, when smartphones did not yet exist, it created the WAP service, so that subscribers could read the site's content on their cell phones. In 2002, it broadcasted the first Brazilian soccer team game over the Internet.

Currently, it has one of the largest audiences on the Internet in Portuguese language: nine out of ten Internet users in Brazil access UOL every month, and its homepage receives more than 114 million unique visitors per month. In 2020 UOL partnered with Amazon to create skills for Alexa.

In Portugal, we did not find any media outlet investing in this area. Perhaps because the speakers do not yet speak the Portuguese of Portugal. We have since discovered that Euroconsumers. The company researches and develops products to be activated by voice assistants in several non-English speaking countries, such as Portuguese. In 2020 the company ran an NLP test with the chatbot in Portuguese from Portugal. Euroconsumers is a non-governmental organisation that brings together five national consumer organisations serving more than 1.5 million people. They are consumer protection associations based in Spain, Belgium, Italy, Portugal and Brazil (Euroconsumers, n.d.).

### **3.2 Process of creating and distribution of the products to be activated by the smart speakers**

In the area of journalism, Globo and UOL publish daily news bulletins for the Google Assistant and Alexa platforms. In the case of UOL, 3 briefings are published per day with breaking news updates. In the case of Globo, even considering entertainment products, the most accessed content is the daily news from G1 (Globo's news website). At UOL, journalism also stands out among the products offered. Short newsletters with information on politics, health and daily life are the most accessed. "So far, the one that has worked best is the newsletter with a news summary of up to 5 minutes." - Flávio Moreira, Strategic Planning Editor of UOL (personal communication, December 22, 2020).

Analysing the Brazilian and American scenarios, Globo notices that the most common uses of this equipment are related to functional activities, such as listening to information about the weather, traffic, general information, etc. “In general, the applications that are most appropriate are those that bring practicality and agility that entertain, are intuitive and help facilitate tasks.” - Guilherme Figueiredo, Digital Audio Product Manager at Globo and Felipe Caldas, Audio Product Specialist at Globo (personal communication, February 5, 2021).

With less than two years of the system being in operation in Portuguese, UOL has already noticed a standard consumer behaviour. “The smart speakers user hardly has a casual habit, he always has a specific time for a specific purpose of content consumption” Flávio Moreira also points out that the peak consumption time is early in the morning, until 8am. To produce content both companies are paying attention to consumer behaviour, yet they feel they lack more detail: “The Brazilian market also lacks more solid data on installed base and usage”, said Globo.

Content curation at UOL is done by a person who stays in the newsroom. Each editorial office, with the support of developers, develops the content. In Globo's case, there is a team in the Digital Audio department dedicated to think about product development. In the case of journalism, each editorial office also has a team that works together with the Digital Audio area.

### **3.3 The Portuguese language as a challenge for content producers**

The two companies say that a product to be activated by a smart speaker cannot be thought of in the same way as content that will be accessed by another platform because of the uniqueness of the devices.

Generally, people who use voice interactions are more active than spectators and will not always have the support of a visual resource on a screen, on the contrary, the main resource is precisely the voice. Thus, the "spoken" text needs to be understandable enough for people to be able to use it without resorting to other channels. (...) That's why it's important to think of several ways out of the box to circumvent users' multiple intentions. Globo, said.

Language is one of the two biggest challenges pointed out by the interviewees (the other is the discovery of the brand). Miguel Lage, Digital Innovation from Euroconsumers talks about an experience that was made in Portugal in 2020 with the chatbot of Deco Proteste, a consumer protection organisation in the country. Using Google's NLP, the company automated the initial phone service. The caller first needed to answer if he was a customer or not, and if he was, he had to give his registration number. Then, they had to tell us what they wanted. There were 40,000 calls in 3 weeks.

Initially we had a very big challenge with yes and no. They are very common, basic words in our language. It may have been the weather, people talking so fast that the system, maybe, couldn't understand. Miguel Lages, said.

To improve the machine's understanding, in NLP training, the programmers put accents on words originally without accents and also separated the syllables of some words, such as the brand itself. "Deco Proteste", was recorded as "déco pro teste". The part where the machine needed to understand what the customer wanted was 80% right, but the numerical customer identification part had more problems.

The best explanation has to do with the design of the conversation, which perhaps wasn't optimized. And it also has to do with Google's NLP, when you start putting numbers in Portuguese, it doesn't work so well. For example: if you ask me what my customer number is, imagining that it's 122438. If I tell Google, slowly, 1-2-2-4-3-8, it recognises. But, very often, the Portuguese do: 12-24-38. And then things can start to go wrong. Miguel Lage, said.

Since Deco Proteste was using Google's NLP for a chatbot, the company was able to adjust to the system training and was able to record the name "déco pro teste" so that the machine could speak and recognise the brand name as the Portuguese speak it. In the case of UOL, in Brazil, the challenge is big: "On both platforms the name "UOL" is confused with "wall" or not understood." Flávio Moreira said. This may be related to the Brazilian way of pronouncing the 'L' at the end of words. They don't use the phoneme /l/, it is more like a semivowel /w/.

In the case of smart speakers, as with smartphones, the adjustments and training of voice assistants can only be done by the companies themselves, such as Amazon and Google. For UOL, this problem of understanding can cost an audience.

### **3.4 Business model and algorithms in the middle ground between content producers and audience**

For content from a specific brand to be accessed on a smart speaker the user needs to say the brand name. For example, "Alexa, the news of the day from -say the brand name." When the user just says, "Alexa, the news of the day," it is the platform that will define the brand that will be presented to the user. But how are brands chosen to respond to user demands? Miguel Lage (personal communication, December 28, 2020) of Euroconsumers gives a clue:

We realized that if you can establish a business relationship with Amazon, maybe we can get or be a first part of Amazon, have some implicit invocation. In the case of Google the question is slightly different, it's more voice action based. Which application does the

fulfilment of the customer's need best. From there you're going to push that APP, you're going to provide that APP to the customer, from the intent that you're stating at the time.

He goes on to give an example:

Whereas Amazon is a more commercial company, let's call it that, in the sense that you can set up a deal and they will even promote in their internal communications their newsletters, even outward. At Google it's more related to their algorithm. Here's a clear example: me, if I'm in the US, and I ask: 'hey Alexa, give me bread and butter'. Clearly it will invoke Wholefoods, which is a first part of Amazon.

Globo and UOL partnered with Amazon as soon as the devices began selling in Brazil in 2019.

### **3.5 Brand investments in content production for smart speakers**

The companies don't talk about amounts invested, but they all stress the importance of having dedicated product development teams for smart speakers.

Considering that Globo is restructuring to become a media tech company, this investment is necessary, as voice interactions via smart-speakers and smart-screens, connected cars and other devices that carry this technology, such as smartphones, headsets and smart-watches, are increasingly gaining market share. It is a new communication channel that will allow Globo to expand the points of contact with its consumers' journey, Globo says. (Personal communication, February 5, 2021).

Asked how it intends to make it financially viable to produce content for smart speakers, Globo replied that "We see some future paths for this initiative, among them: audio advertising and sponsorship of voice-activated content, value creation for products that already have a subscription, through exclusive access and features for subscribers and via new transactional business models".

UOL confirms that because it is unlike anything it has ever done, resources are being allocated for production, but it does not reveal figures, nor how it intends to make the smart speakers financially viable for the company. Miguel Lage from Euroconsumers points out that efforts made today can translate into money in the future:

We believe that these platforms will become mainstreaming in the future. And from the moment they become mainstreaming we will be able to bring return for effort (...) This test in the contact centre showed that it will be cost-effective to have a virtual assistant, even if it only does an initial part of the job, because scaled up to larger volumes we are sure

will increase some efficiency translate into euros. (Personal communication, December 28, 2020).

### **3.6 Consumer's point of view**

Of the 112 people who answered the survey, 90,18% live in Brazil. 6,25 % live in Portugal. Those who pointed out that they live in another country (3,57%) informed that they live in Canada. Given the low percentage of Portuguese people in the survey, which makes them not representative for the sample, we decided to focus the sample on Brazil.

Almost 80% (79,46%) are between 23 and 50 years old, with the 23 to 30 age group being the most representative in this group (29,46%). 60% of those who answered the survey are male. The majority of respondents use Amazon's equipment, with voice assistant Alexa: 83,04%. Google Assistant users using Google Home or Google Nest therefore total 16,96%. Most users who participated in the survey answered that they use the equipment every day (75%). 15,18% use it more than 3 times a week.

58,82% of those who answered the survey use smartphones with Apple's IOS system. Apple has a smart speaker, Apple Home, which would be easily integrated into the cell phone. But Apple Home does not yet operate in Portuguese, so no survey respondents use Apple's speaker. 40,20% use the Android system on their smartphone and less than 1% use Microsoft's system.

When asked about their main source of information, most respondents already demonstrate online news consumption behaviour: 36,61% said that social networks are the main source of information. In second place, news sites, with 32,14%. Television comes third with 11,61%. The results for smart speakers are 8,93%. Note that this is a number that is already close to television and ahead of other traditional media. Newspaper got 5,36% and radio 1,79%. Podcast was the choice of 3,57%.

Among those who answered that the social network is the main source of information, Instagram and Twitter appear tied as favourites with 39,02%. YouTube is the social network most used by 12,20% of respondents. WhatsApp is the most used by 4,88%. Facebook and Tik Tok, 2,44% each. Reddit and LinkedIn were not indicated by anyone as a source of information.

The profile of our sample indicates that users of Smart Speakers are accustomed to using the Internet on a daily basis. And they are also people who have web platforms as their main source of information: 81.25% have social networks, news sites, the smart speakers themselves, and podcasts as their main source of information, that is, the traditional media (TV, radio, and newspaper) add up to 18.75% as their main source of information.

### 3.7 Consumer’s modalities of usage of smart speakers for news consumption

When asked if they had ever tried to do any news search on these devices, 65,96% said yes and 34,04% said no. UK data shows that in 2020 only 5% used smart speakers to search for news (Newman, 2020). This may indicate that there is a great potential for this platform for distribution of content in Portuguese.

In a multiple-choice question about the regular use of smart speakers, the result points out that the devices are most often used for entertainment, but the search for information comes right after, even ahead of the activation of home appliances. This reinforces the perspective that there is a great potential for the distribution of journalistic content in Portuguese on this platform.

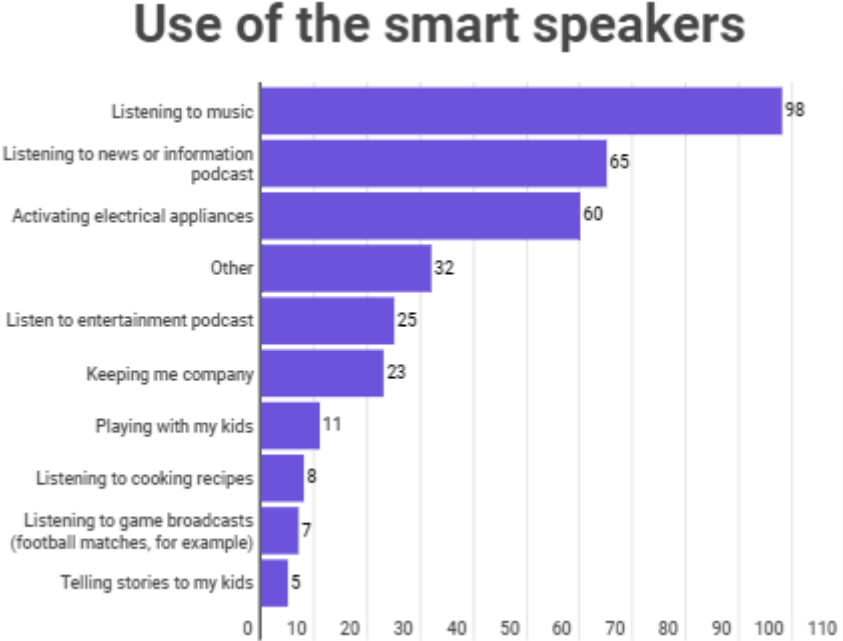


Figure 2.1: Use of the smart speakers.

Among those who pointed out that they use the equipment to listen to news or information podcasts, 53,23% said they do it daily. 27,42% turn it on for this purpose up to 3 times a week. This seems to indicate that those who use a smart speaker to listen to news do so on a regular basis. That is, it reinforces the idea that this equipment has great potential to become an important platform in the search for news. This would justify media investment in this area.



## Frequency of use of the device to listen to news or information podcasts

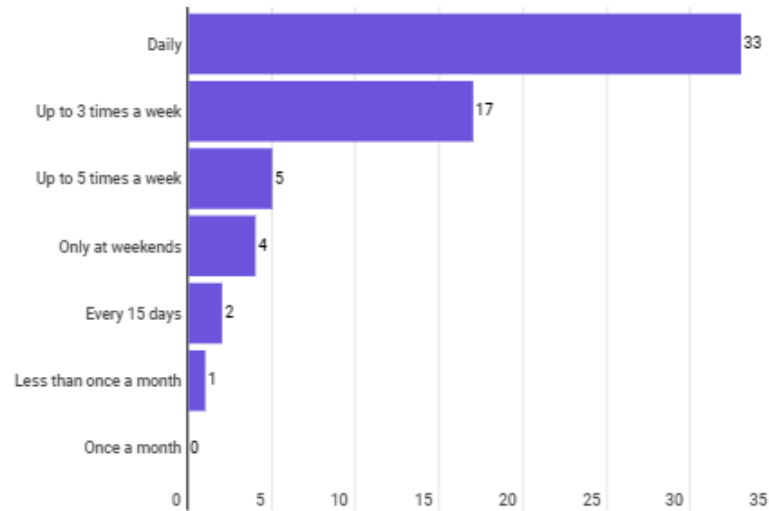


Figure 2.2: Frequency of use of the device to listen to news or information podcasts

To understand how users search for news on these devices, they were asked to write down the sentences they use to trigger this skill.

## Most common texts for requesting news

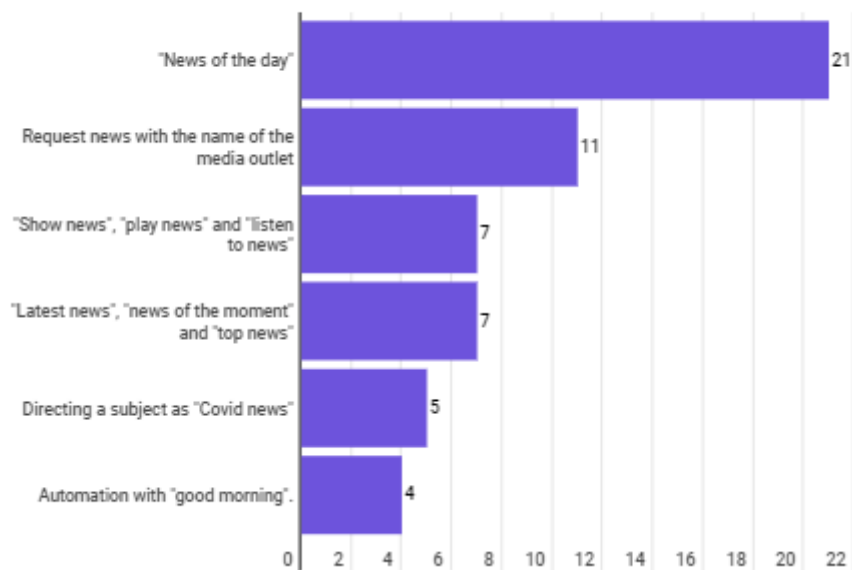


Figure 2.3: Most common texts for requesting news

In the interviews, the two largest communication groups in Brazil have shown to be aware of the market and already offer content, especially news bulletins. This type of content seems to be adequate to the needs indicated by the respondents, since the majority indicated that they search for "news of the day", "latest news", "main news" or "news of the moment". It seems to be the intention of wanting a summary of what is happening. There is also indication that people use the news function mainly in the morning. Some respondents said that by giving "good morning" to the equipment, they automatically activate the news skill. UOL has also noticed consumption peaks at 8am.

## Search for news using the name of a media outlet

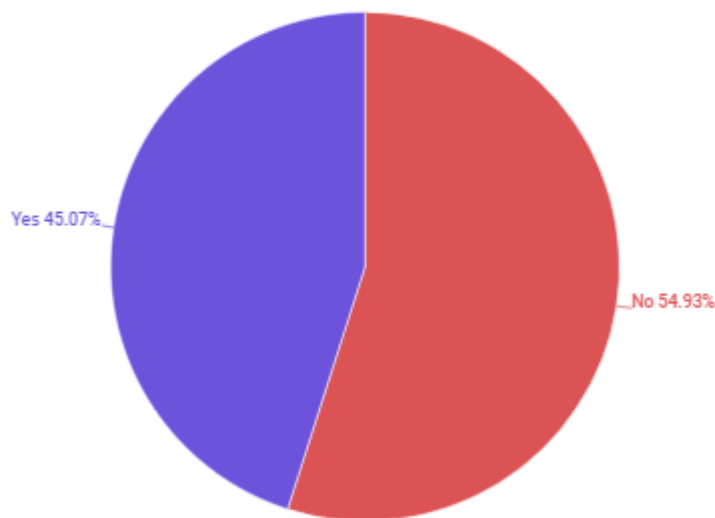


Figure 2.4: Search for news using the name of a media outlet.

Among those who search using the name of a communication vehicle, G1 (Globo's news site) was mentioned 14 times. CBN (Globo's news radio) was mentioned 6 times. Local newspapers from Brazil 5 times. Folha de São Paulo was cited 3 times. UOL, 2 citations. CNN, 2 citations. The brands from the Globo group seem to be more in the user's memory and have an advantage over the others. This could be explained by TV Globo's history as "audience champion" in the last decades.

Regarding the advantage of using these devices to search for news: 61,46% of the respondents pointed out that "no typing, just talking" is the main advantage. For 19.79% "the result is faster than other search tools, such as Google". 12.50% pointed out that the main advantage is that "the result appears exactly what you want to hear. 6, 25% pointed out other reasons. Almost all say that the biggest advantage is being able to do another activity while

listening to the news. Only one person indicated another reason, which is the fact that the equipment "summarizes the main news".

### **3.8 Difficulties in accessing and understanding the Portuguese language**

When asked in an open-ended, non-mandatory question if they had ever faced any difficulties, 27 people answered. 10 of them said that they had never faced any difficulty. 5 had complaints related to accessing news. The answers were as follows:

- 1) "Difficulty to align the news with geolocation, few sites and few associated radios".
- 2) "I asked for news, and it answered only with music radio".
- 3) "The portals were not updated with the news of the day, and I ended up listening to the news of the previous day".
- 4) "Very general news, without deepening in any theme".
- 5) "I think the news skill is limited".

There were also complaints about the search system: "finding the right answer", "some things Alexa doesn't know because it doesn't have a search system like Google", "Alexa didn't understand exactly what I was searching for. It doesn't seem to work like google works". This question of the device understanding or not knowing it is a difficulty in understanding the language or the topic being searched. The user does not objectively describe the reason for the comparison with Google as synonymous with efficiency. Regarding difficulties with the language, two people made the following report: "there is no national supply in Portugal" and "information in Portuguese is rarely phonetically easy to retrieve". We asked a more specific question about language, with a mandatory answer.

## The device has some difficulty in understanding Portuguese.

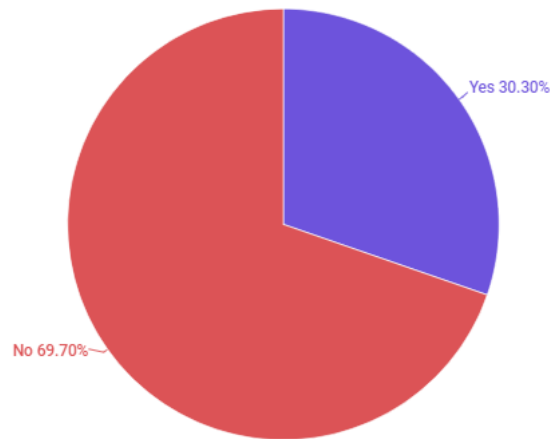


Figure 2.5: The device has some difficulty in understanding Portuguese.

Among those who said they have the impression that the equipment has difficulty there are several reports that, “often Alexa replies that she doesn’t understand” or even “confuses the words I say”, because “it takes repeating a few times”, “for asking something and Alexa doesn’t respond” and “Alexa doesn’t understand simple things”. Some respondents report their suspicions that the difficulty in understanding may be “because of the regionalism of the language”, “because Alexa doesn’t have a wide database, besides the accent issue, she may have difficulty”. There are also those who indicate that “sometimes Alexa doesn’t identify pronunciation and punctuation well.” One respondent said that he uses the equipment in both English and Portuguese and that “although Portuguese is my native language, Google responds more often that it ‘didn’t understand me’ in Portuguese than in English.” This seems to corroborate the distance of NLP evolution between English and Portuguese

When asked about a misunderstood or misinterpreted word, many replied that they could not remember. Among those who reported examples 5 cited words ending with the letter “R”: parar (to stop), desligar (turn off), reiniciar (restart), despertador (alarm clock) and a person who asked “liga o ventilador” (turn on the fan) and the equipment understood something related to a “jogador” (player). This may be related to the way some Brazilians, especially those in the Northeast, a region that is socially poorer than others in the country, pronounce the R at the end of the words. The phoneme /r/ is not pronounced vibrantly. It is very weak. And maybe the NLP is not trained for this form. Lima et al. (2019) had already done the test which demonstrated that with Northeasterners there were more errors or failure of comprehension by voice assistants.

There was also a report that the equipment mistook “colírio” (eye drops) for “lírio” (lily). Here we see two words that are very similar phonetically. Only with the first syllable different, but with the same stressed syllable. It was not informed by the user if this situation was happened other times or if it was a one-time thing.

Another word pointed out was Garanhuns, the name of a city in the interior of the state of Pernambuco, in Brazil. The word is of indigenous origin. This consonantal meeting of the N with the S is said in different ways in Pernambuco: in the cultured form, each letter must be pronounced /u/, /n/ and /s/. But popularly, many people speak as if there is a letter l between U and N and the S has an X sound. Something like the written word “Garanhuinx”. One possibility is that the NLP system has not been trained to recognize this other way of speaking.

To compare experiences with voice assistants we asked whether smartphone voice assistants understand Portuguese better than these devices. For 76.47% the answer was no. 25.53% said yes. These numbers seem to indicate that for most survey respondents, smartphone voice assistants and smart speakers are on the same level.

### 3.9 The impact of the COVID-19 pandemic on smart speaker users

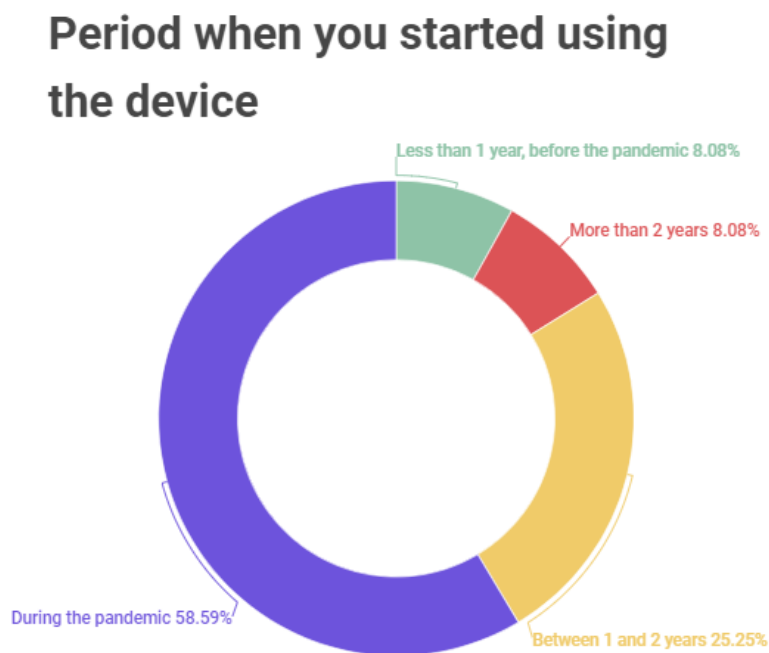


Figure 2.6: Period when you started using the device.

Among those who started using during the pandemic, the majority (61,54%) confirm that the pandemic influenced their decision to buy the equipment. 38, 46% said that their purchase decision was not influenced by the pandemic. Our sample follows the trend of pandemic-

induced increased use as demonstrated in other research (We Are Social, 2020; We Are Social, 2021; NPR & Edison Research, 2020).

Asked how the pandemic influenced the purchase of the equipment 28 people responded. 6 users pointed out that it was the promotions and advertising during this period that influenced their purchase decision. Another 6 users said that by spending more time at home they saw the possibility of automating the house, of making it “smarter.” Some pointed out that “since leisure was affected” they bought the equipment for entertainment and listening to music. This was the justification of 5 people. One person also said that he bought the equipment to “kill boredom and loneliness”. Other respondents also said that they wanted to make the “home socializing more interesting”, that they “wanted to change the way I deal with my electronic equipment on a daily basis”, “to have one more device to interact with” and “to make daily life easier”.

### **3.10 Privacy and data use from the users' perspective**

Asked if there were any fears or concerns about using these devices, 77.06% said no and 22.94% said yes. From this point of view, our sample goes in the opposite direction of what other surveys have pointed out: most are not afraid. Even in the United States, a country that always adopts technologies more readily, surveys show that more than 50% of Americans have some fear of losing privacy with the use of smart speakers (CDEI, 2019; Voicebot.ai report, 2020).

Among those who said yes in our sample, the most common fear or concern was of losing privacy and the equipment being listening all the time. One person pointed out that they fear that the “algorithms shape my profile to try to manipulate how I receive information and how I form my opinion.”

## Fear of using the device

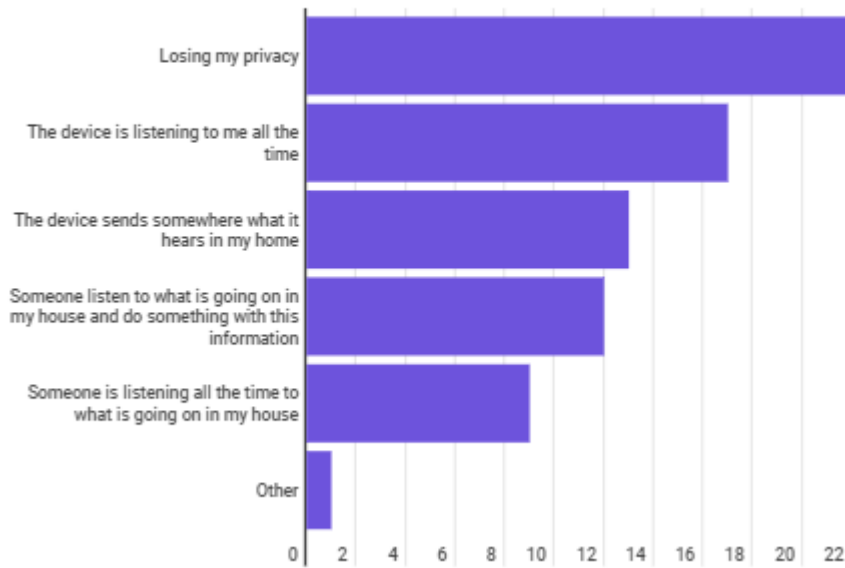


Figure 2.7: Fear of using the device.

As there are several cases reported on the internet of the device activating itself, causing fear of privacy breach to users we also asked in our survey if this had happened to respondents. We have no way of comparing data because we have not found another similar survey.

## Have you ever had the experience of the device activating itself?

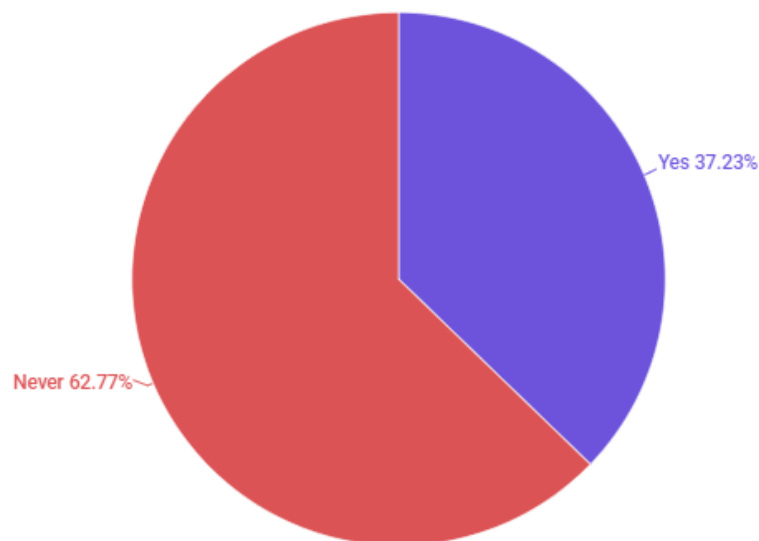


Figure 2.8: Have you ever had the experience of the device activating itself?

They were also asked about what they would like the devices to do that they don't already do. It was an open-ended question, with no required answers. 101 people responded. Here are the highlighted responses:

## What would you like the device to do that it does not yet do

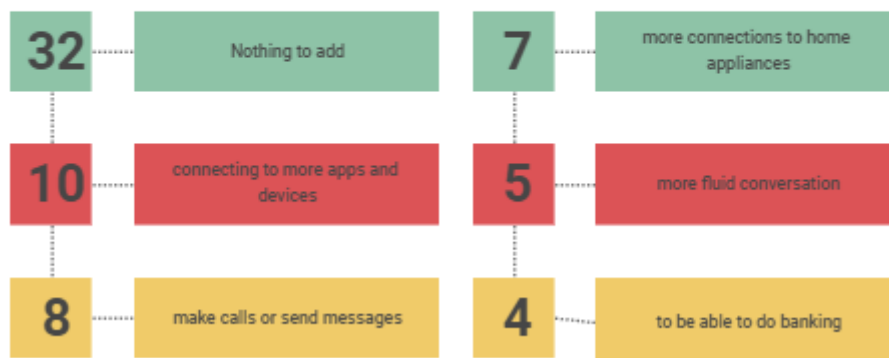


Figure 2.9: What would you like the device to do that it does not yet do.

These answers reinforce the expressive result of the lack of fear for the use of smart speakers. Our sample wants even more connection with other equipment, some that require giving up sensitive data, such as banks.

Regarding the desire to have more fluid conversations with the device, it is worth highlighting the 5 answers.

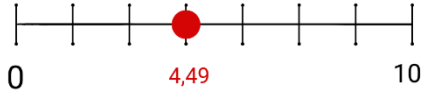
- "Complex sentences continued by an 'and'".
- "Perform more actions in a single activation. Ex: Turn on the tv on PS4, light at 50% and the blue light at 100"
- "Continuous conversation in Portuguese, without having to call it for each action".
- "Power of multiple orders, for example: turn on the tv and the air conditioning"
- "Understanding sequenced questions"

To make this possible, it is necessary to make a change in the programming of the appliances, which only respond to one order at a time. It is interesting to note that this may be an indication that users do not want to see the device as a robot, with mechanised sentences. It is interesting to cross-check this information with the data below.



# Robotic voice

**How robotic is the device's voice?**



**Should the device's voice sound more natural to the human ear?**  
(0 no change needed, 10 should change a lot)

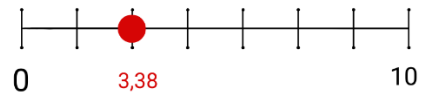


Figure 2.10: Robotic voice.

The results show that the voice is slightly robotic, but overall sounds natural to the human ear. This data seems to align with previous findings of wanting a less robotic conversation with the device.

## Conclusion

The purpose of this study is to understand how Portuguese speakers are using smart speakers for the consumption of journalistic content and what the challenges are for the producers of this content. A platform created in 2014 only in 2018 included the Portuguese language (Brazilian Portuguese) in its system. As it is something so recent there are few studies in this area, hence the relevance of our research.

Users in our sample have shown that there is a great interest in using smart speakers to access news. They are mainly looking for news summaries of the facts of the day. This is clear when they say they use words like “news of the day” and “latest news” to search for the news. UOL even detected a consumption peak around eight o'clock in the morning. Both Globo and UOL also identified that short news bulletins are the most accessed by users that search for journalistic information.

The percentage of people who pointed out some kind of lack of understanding of the Portuguese language by the device is still relevant (over 30%). This indicates that Google and Amazon should train the NLP systems more, including prosody and vocabulary from different regions of Brazil. The users themselves indicated more recurrent errors when speaking regionalisms.

The convenience of operating a device by voice command is the smart speaker's greatest attraction. Voice control also helps to include the illiterate and visually impaired people. But the challenges of inclusion are enormous. One must first have access to the device, which is not so cheap, costing from 30 euros. Second, you need to have good Internet broadband for the device to work well. This comes at a high cost for some families. The improvement of this Internet also depends on the installation of 5G, which has not yet been deployed at the time of this research, in Brazil. And last, but not least, people need to understand the logic of how these devices work so that they can take advantage of what they can offer. Digital literacy is very important in this regard.

As the representatives of the interviewed companies pointed out, the biggest challenge for brands is to be found by the public. If before, when turning on a TV or a radio, the public needed to choose to tune to a channel, now, to buy a newspaper from a certain company, on the smart speakers, they say "listen to the news of the day" and they don't need to define which company will provide the content. Less than half of our survey respondents used the name of a media outlet to search for news. The leading media outlets in their segment and with high website audiences have an advantage over the others, they are the most remembered by the users who responded to our survey.

Miguel Lajes from Euroconsumers revealed that Google and Amazon's priorities to serve users are also a challenge for content producers: Google will define that content by the user's

profile and Amazon prioritizes business partners. Two bubbles that the media need to burst to reach the consumer. Given what we know, to pierce these bubbles content producers would need to reinforce their presences on other offline (television, radio) and online (websites, social media) platforms to be remembered by users and, in Amazon's case, will need to make commercial partnerships.

And so, we immediately think about the challenge of small companies and journalistic collectives that do not have at their disposal large funds for commercial partnerships and have other difficulties to consolidate their brands offline and online. The platform can generate even more concentration of consumption of journalistic content from large companies. This is a discussion that is not exhausted in this study and can be expanded by further research. The COVID-19 pandemic has boosted sales and consumption of news via smart speakers. Future research may indicate whether the curve will continue to be upward.

Communications companies need to train the professionals already in the market, and universities need to prepare students to produce content to be activated by voice assistants. Not only for the language, which is different from TV, newspaper, radio, or Internet site, since our research shows that they are text to be heard and in an objective way. Implementing AI-based solutions also requires the development of a strategic vision, economic investment, interdisciplinary team building and the search for alliances with educational and technological organisations. The processes developed with AI should be auditable, adjustable, transparent, and traceable, and respond to ethical standards of journalism; the latter is perhaps the most critical aspect of intelligence implementation in the media industry.

As some researchers have pointed out (Magrani, 2018; Barcelos 2019), it is urgent to discuss ethics for the Internet of Things, international rules to guarantee, among other things, users' privacy. Despite being a sensitive topic, a minority of respondents in our survey are concerned about this. One more reason why this discussion can be amplified with new studies and new initiatives from governments, universities, and organised civil society.

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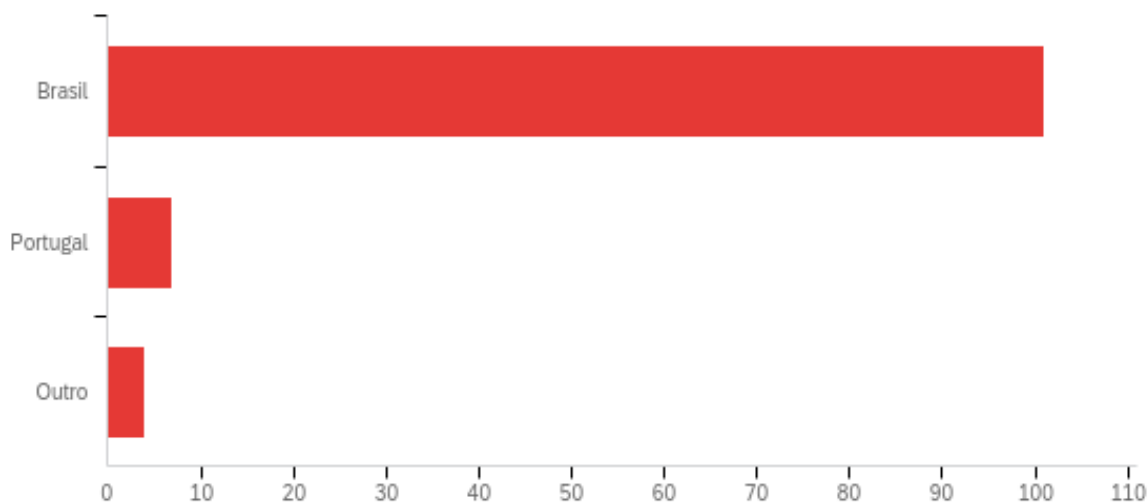
## Appendices

Relatório predefinido

Smart Devices portuguese

June 21st 2021, 5:32 pm BST

Q1 - Onde mora:



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Onde mora: - Selected Choice	1.00	3.00	1.13	0.43	0.19	112

#	Resposta	%	Contagem
1	Brasil	90.18%	101
2	Portugal	6.25%	7
3	Outro	3.57%	4
	Total	100%	112

Q1\_3\_TEXT - Outro

Outro - Texto

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Canadá

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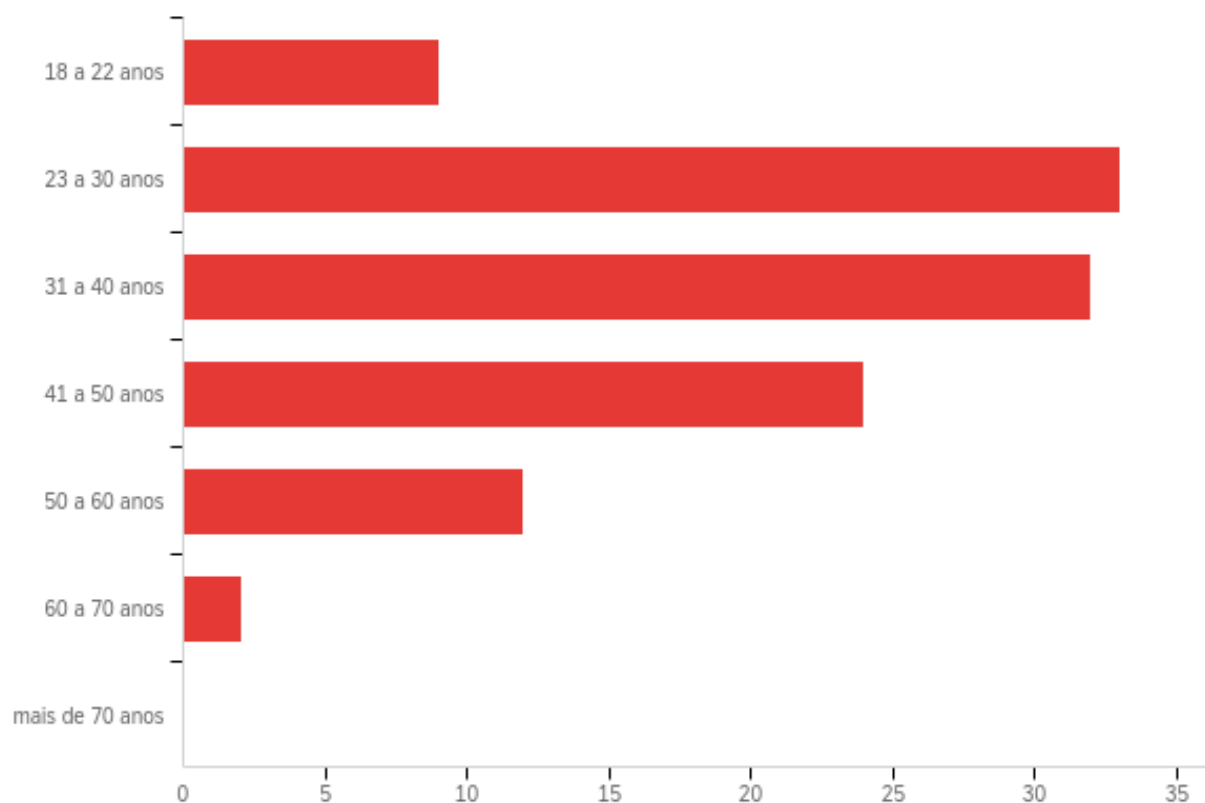
Canadá

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Canadá



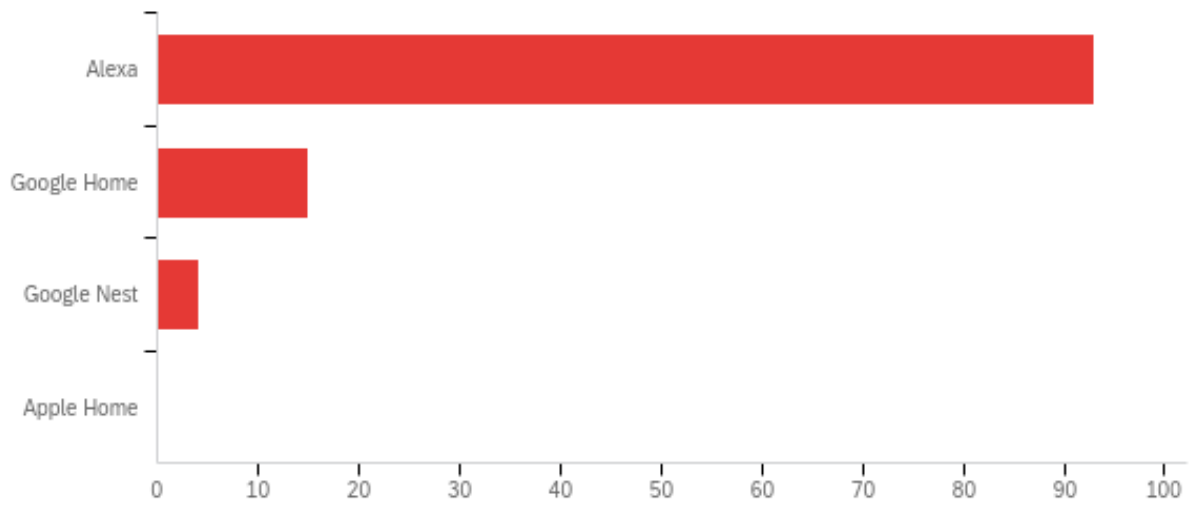
## Q2 - Qual a sua idade?



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Qual a sua idade?	1.00	6.00	3.03	1.19	1.42	112

#	Resposta	%	Contagem
1	18 a 22 anos	8.04%	9
2	23 a 30 anos	29.46%	33
3	31 a 40 anos	28.57%	32
4	41 a 50 anos	21.43%	24
5	50 a 60 anos	10.71%	12
6	60 a 70 anos	1.79%	2
7	mais de 70 anos	0.00%	0
	Total	100%	112

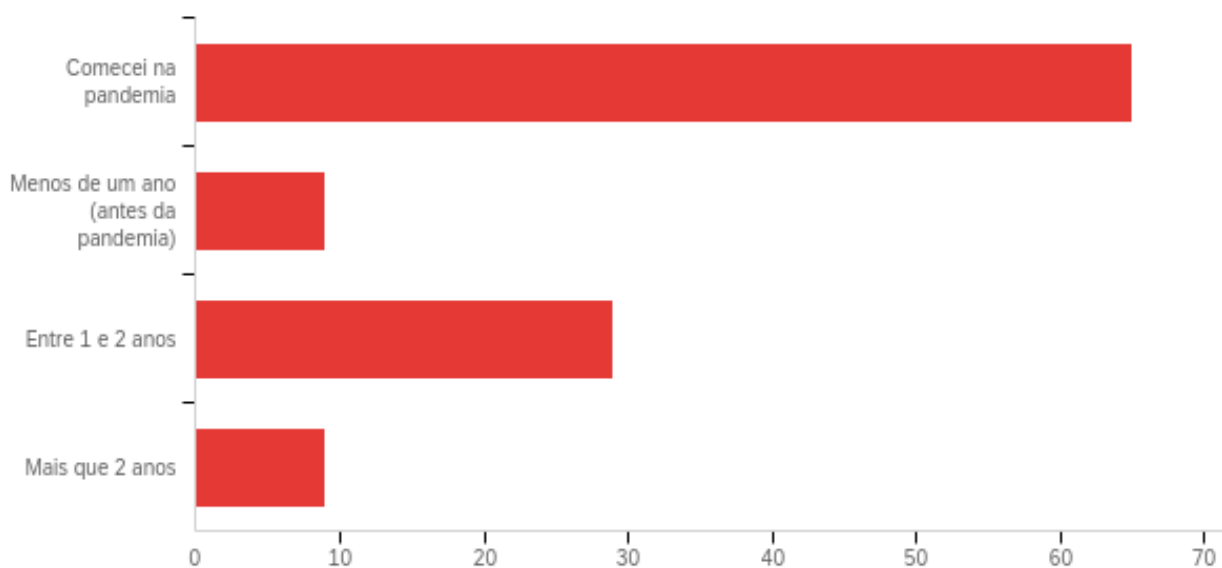
### Q3 - Qual destes aparelhos você utiliza?



#	Field	Mínimo	Máximo	Média	Desvio padrão	Varição	Contagem
1	Qual destes aparelhos você utiliza?	1.00	3.00	1.21	0.48	0.23	112

#	Resposta	%	Contagem
1	Alexa	83.04%	93
2	Google Home	13.39%	15
3	Google Nest	3.57%	4
4	Apple Home	0.00%	0
	Total	100%	112

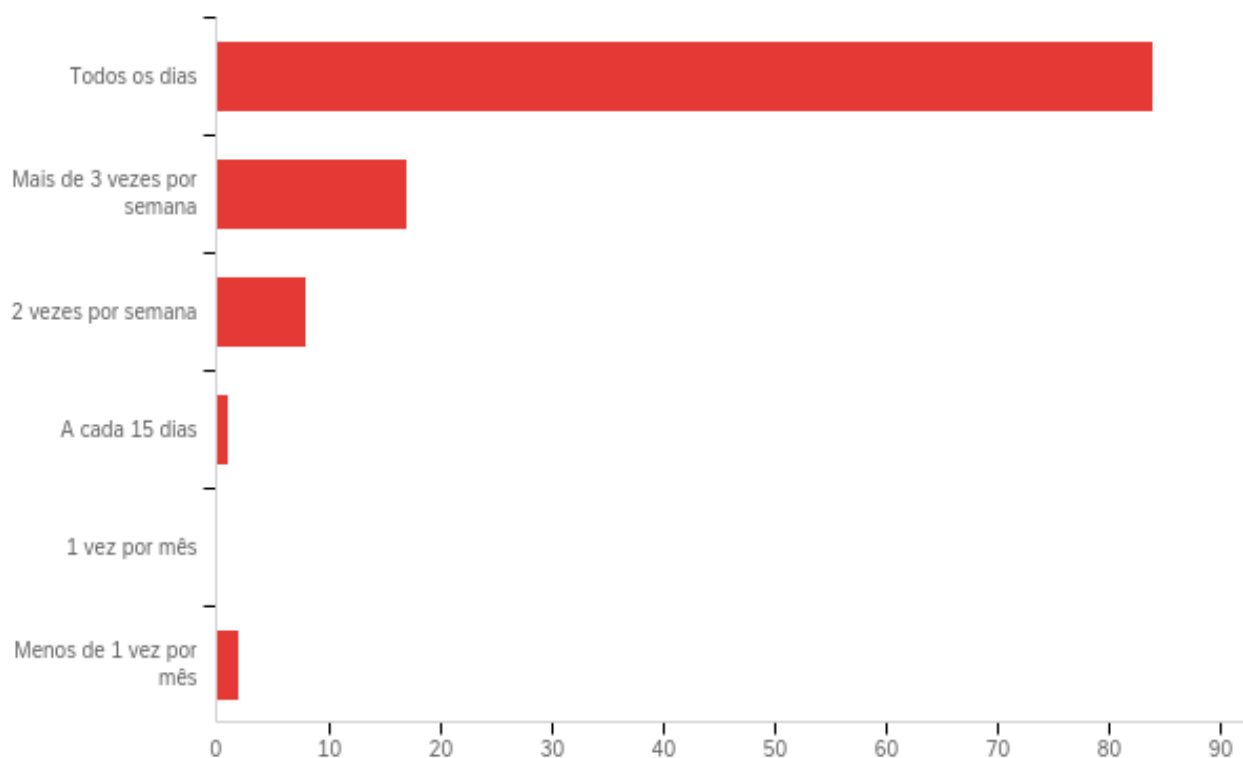
#### Q4 - Há quanto tempo você utiliza esses aparelhos?



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Há quanto tempo você utiliza esses aparelhos?	1.00	4.00	1.84	1.07	1.13	112

#	Resposta	%	Contagem
1	Comecei na pandemia	58.04%	65
2	Menos de um ano (antes da pandemia)	8.04%	9
3	Entre 1 e 2 anos	25.89%	29
4	Mais que 2 anos	8.04%	9
	Total	100%	112

### Q5 - Quantas vezes utiliza o aparelho?

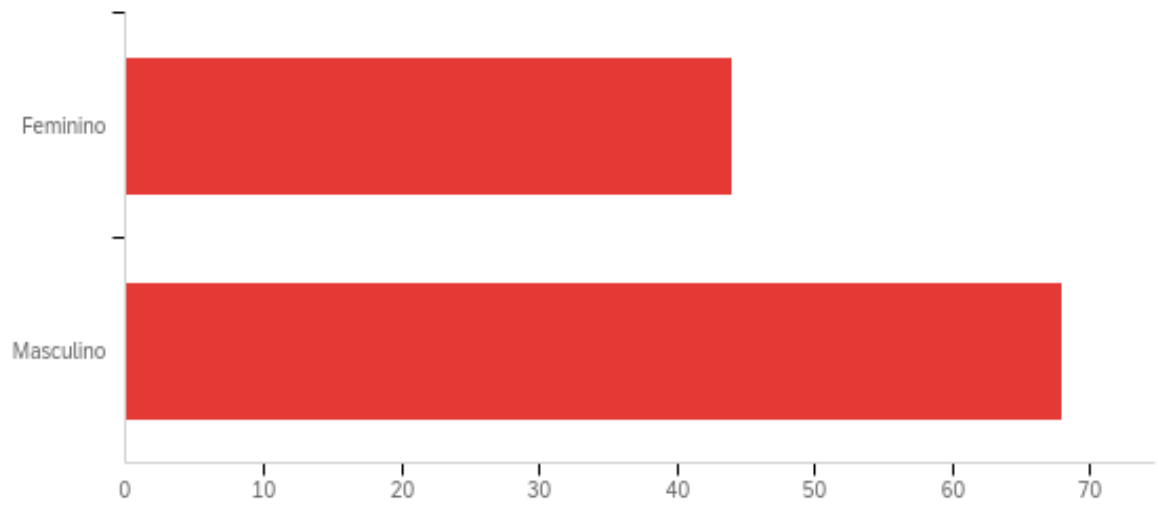


#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Quantas vezes utiliza o aparelho?	1.00	6.00	1.41	0.89	0.80	112

#	Resposta	%	Contagem
1	Todos os dias	75.00%	84
2	Mais de 3 vezes por semana	15.18%	17
3	2 vezes por semana	7.14%	8
4	A cada 15 dias	0.89%	1
5	1 vez por mês	0.00%	0
6	Menos de 1 vez por mês	1.79%	2
	Total	100%	112



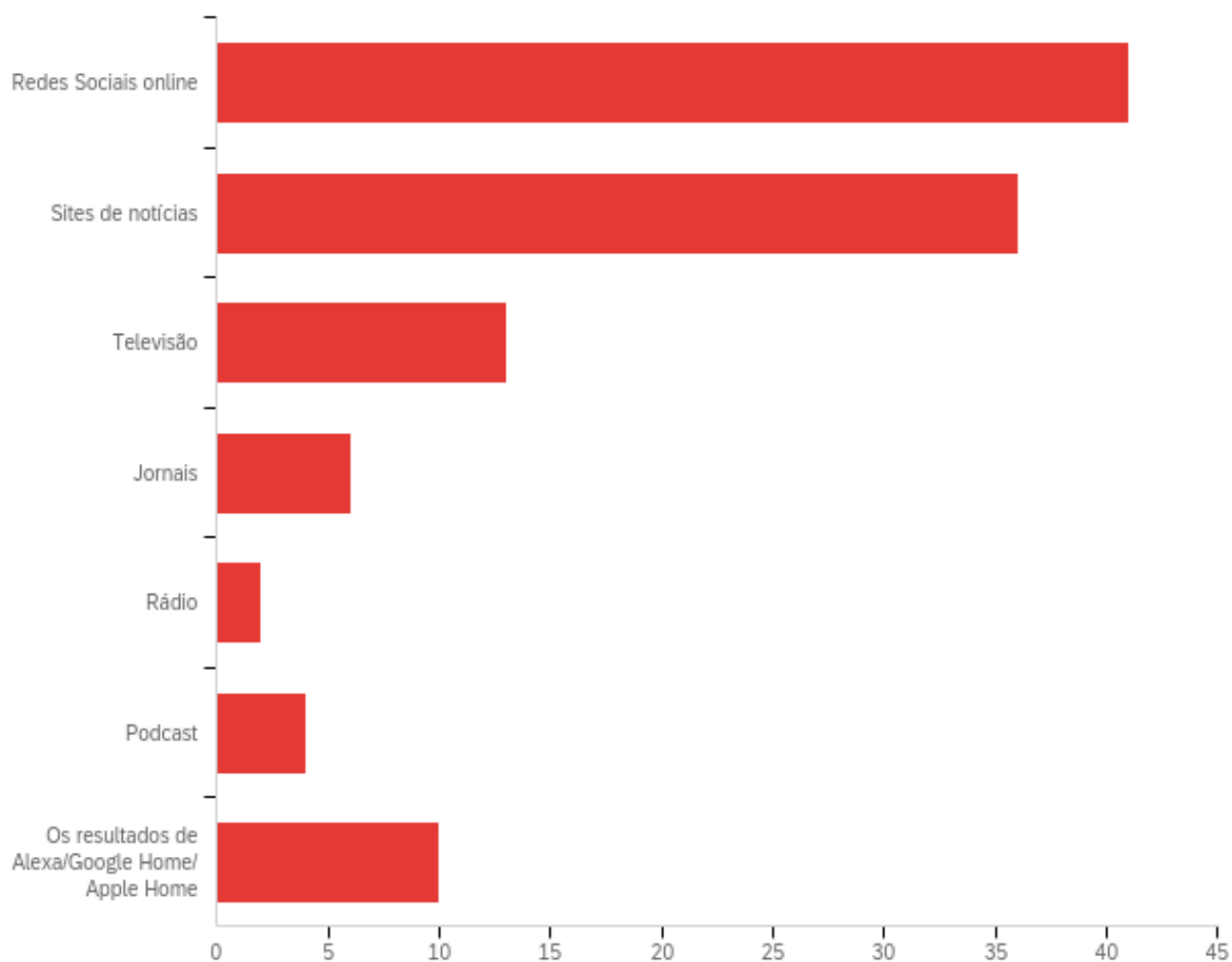
**Q6 - Qual o seu sexo?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Qual o seu sexo?	1.00	2.00	1.61	0.49	0.24	112

#	Resposta	%	Contagem
1	Feminino	39.29%	44
2	Masculino	60.71%	68
	Total	100%	112

## Q7 - Qual a sua principal fonte de informação?

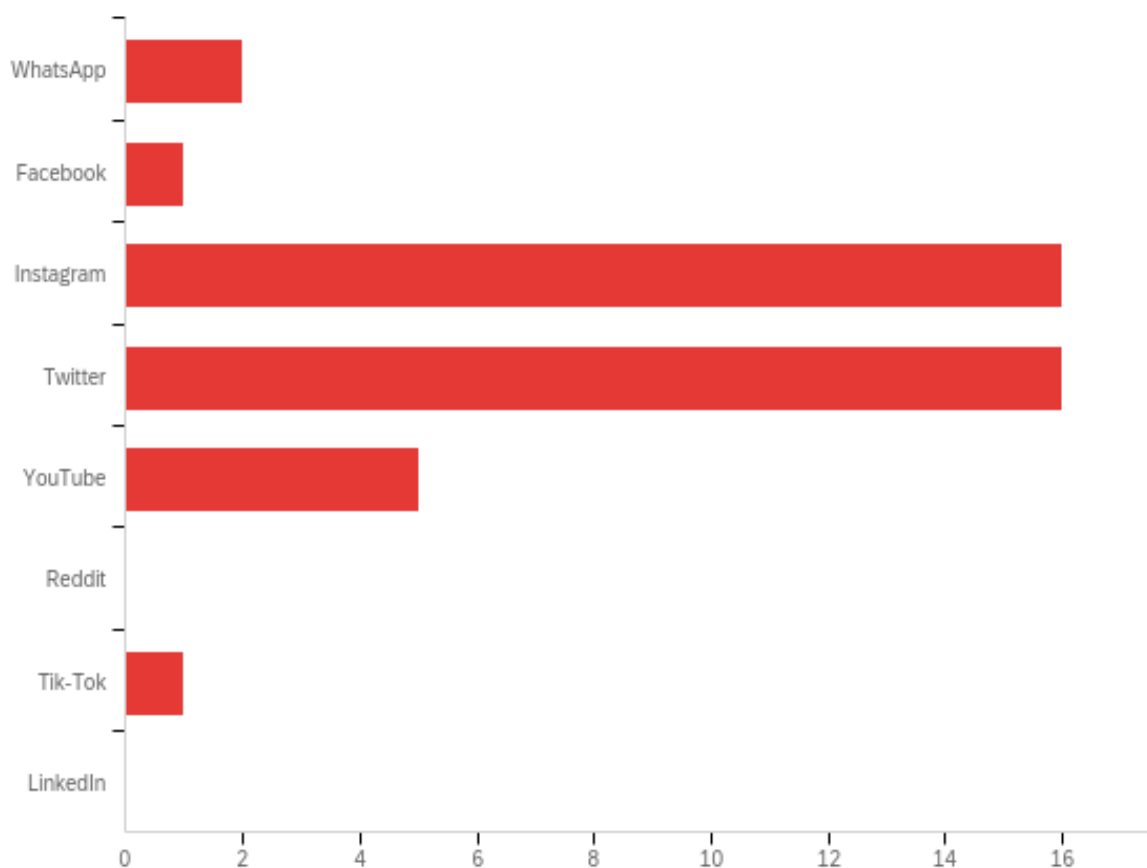


#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Qual a sua principal fonte de informação?	1.00	7.00	2.50	1.85	3.41	112

#	Resposta	%	Contagem
1	Redes Sociais online	36.61%	41
2	Sites de notícias	32.14%	36
3	Televisão	11.61%	13
4	Jornais	5.36%	6

5	Rádio	1.79%	2
6	Podcast	3.57%	4
7	Os resultados de Alexa/Google Home/ Apple Home	8.93%	10
	Total	100%	112

**Q9 - Qual dessas redes sociais é a que mais usa como fonte de informação?**

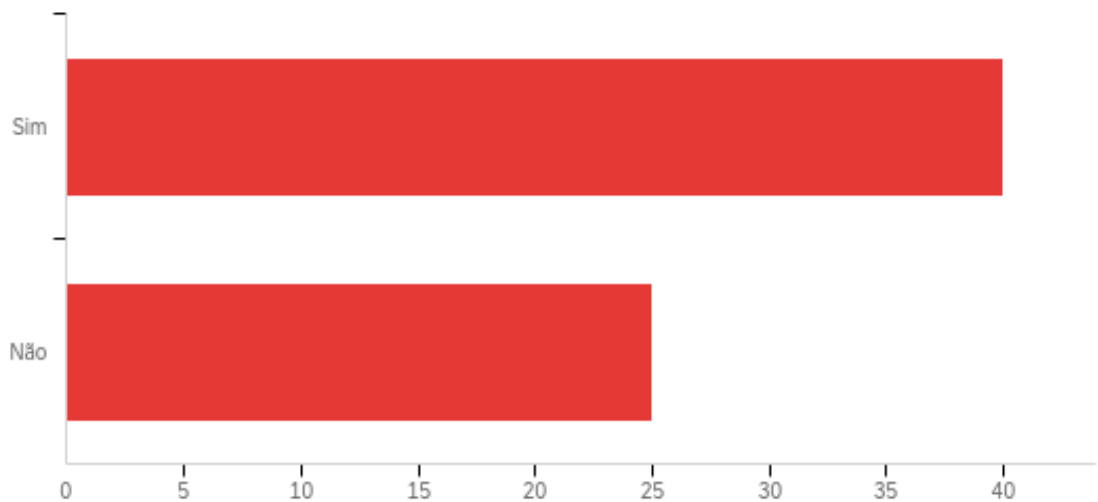


#	Field	Mínimo	Máximo	Média	Desvio padrão	Varição	Contagem
1	Qual dessas redes sociais é a que mais usa como fonte de informação?	1.00	7.00	3.61	1.06	1.12	41

#	Resposta	%	Contagem
1	WhatsApp	4.88%	2
2	Facebook	2.44%	1
3	Instagram	39.02%	16
4	Twitter	39.02%	16
5	YouTube	12.20%	5

6	Reddit	0.00%	0
7	Tik-Tok	2.44%	1
8	LinkedIn	0.00%	0
	Total	100%	41

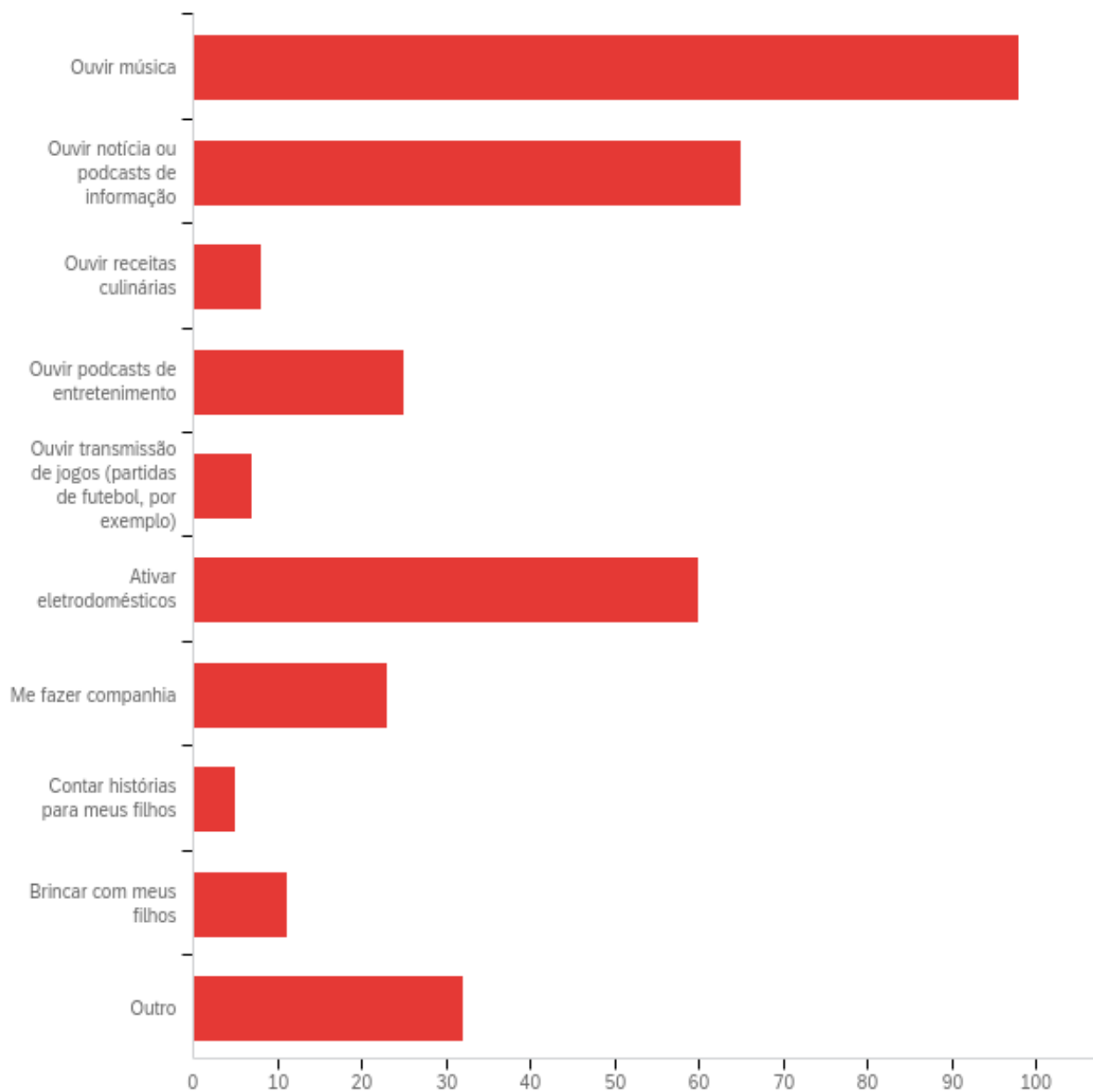
**Q12 - A pandemia influenciou, de alguma maneira, a sua decisão de comprar do equipamento?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	A pandemia influenciou, de alguma maneira, a sua decisão de comprar do equipamento?	1.00	3.00	1.77	0.97	0.95	65

#	Resposta	%	Contagem
1	Sim	61.54%	40
3	Não	38.46%	25
	Total	100%	65

**Q13 - Usa o seu Alexa/Google Home/Apple Home para quê? (pode marcar mais de uma opção)**

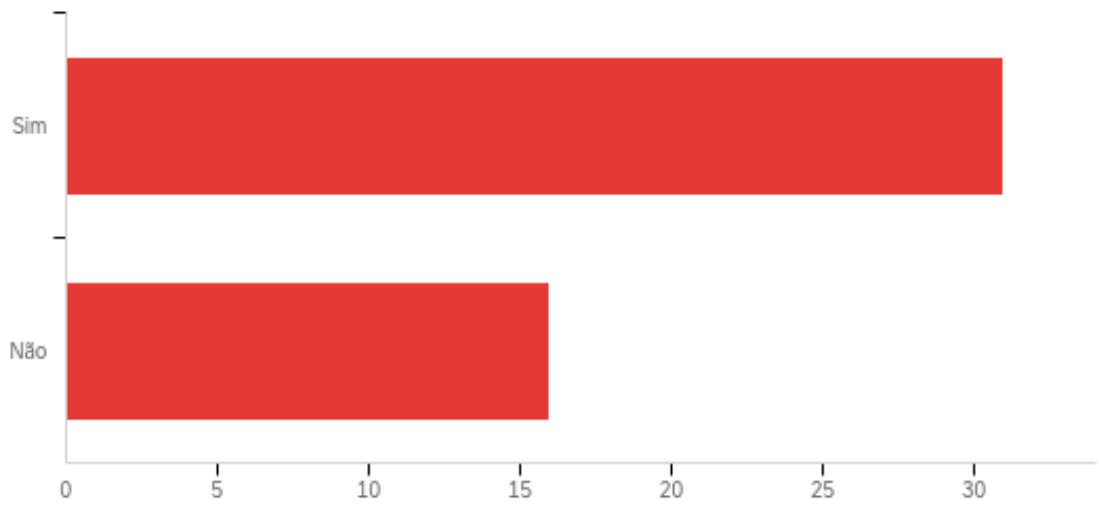


#	Resposta	%	Contagem
1	Ouvir música	29.34%	98
2	Ouvir notícia ou podcasts de informação	19.46%	65
3	Ouvir receitas culinárias	2.40%	8
5	Ouvir podcasts de entretenimento	7.49%	25
8	Ouvir transmissão de jogos (partidas de futebol, por exemplo)	2.10%	7

9	Ativar eletrodomésticos	17.96%	60
10	Me fazer companhia	6.89%	23
11	Contar histórias para meus filhos	1.50%	5
12	Brincar com meus filhos	3.29%	11
13	Outro	9.58%	32
	Total	100%	334



**Q14 - Já tentou fazer alguma busca de notícias nesses equipamentos?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Já tentou fazer alguma busca de notícias nesses equipamentos?	1.00	2.00	1.34	0.47	0.22	47

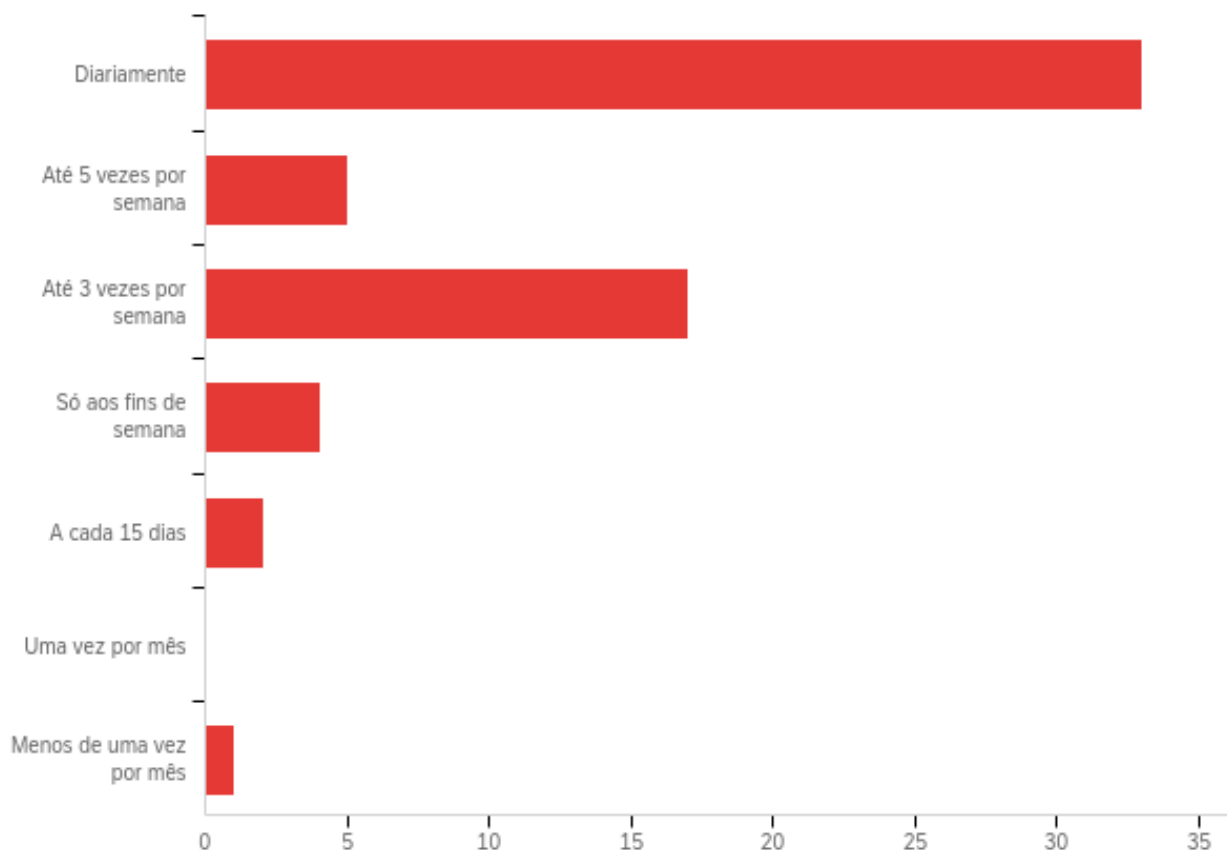
#	Resposta	%	Contagem
1	Sim	65.96%	31
2	Não	34.04%	16
	Total	100%	47

## Q15 - Enfrentou alguma dificuldade? Qual foi?

Descobrir outras funções da Alexa
Sim, ela não entendia exatamente o que eu buscava. Parece não funcionar feito uma pesquisa no google
Nenhuma
Não.
Não
Dificuldade de alinhar o noticiário com a geolocalização, poucos sites e poucas rádios associadas
S dificuldade considerável
Raramente as informações em português não são foneticamente fáceis de serem recuperadas
Sim. Pedi notícias e ele respondia apenas com radio de musica.
Algumas funcionalidades exigem que você tenha uma conta na Amazon e isso é um pouco chato.
Os portais não eram atualizados com a notícia do dia e eu acabava por ouvir a notícia do dia anterior
Notícias muito gerais, sem se aprofundar em tema algum
É muito recente, então estamos tentando vincular aos eletrodomésticos.
Achei a skill de notícias limitada.
Notícias básicas
Não
Não tem oferta nacional em pt
Recebi alteras Washington Post. Entretanto acabaram
Não
Achar a resposta certa
Não
Não acho a usabilidade boa.
Não, só algumas coisas que ela não sabe porque não tem um sistema de busca como o Google.
Não encontrei dificuldade
Não
Ainda não. Parece um sistema bem fluido
Nenhuma



**Q16 - Com que frequência usa o aparelho para ouvir notícias ou podcasts de informação?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Com que frequência usa o aparelho para ouvir notícias ou podcasts de informação?	1.00	7.00	2.05	1.33	1.76	62

#	Resposta	%	Contagem
1	Diariamente	53.23%	33
2	Até 5 vezes por semana	8.06%	5
3	Até 3 vezes por semana	27.42%	17
4	Só aos fins de semana	6.45%	4
5	A cada 15 dias	3.23%	2

6	Uma vez por mês	0.00%	0
7	Menos de uma vez por mês	1.61%	1
	Total	100%	62

**Q17 - Como você faz a busca por notícias? Escreva de 1 a 3 frases que usa para fazer a busca.**

---

Não busco por notícia. Ouço podcast de informação

---

Alexa me explica sobre tal coisa...

---

Alexa me mostre as notícias

---

Alexa, notícias sobre o covid no Brasil.

---

Eu não busco, sigo perfis.

---

Ok google!! Quais as notícias do momento no Brasil!

---

Já selecionei anteriormente que tipo de notícia que ele ouvir

---

Noticias do dia

---

Alexa ... e direciono o assunto

---

Alexa, tocar podcast mais recente do café da manhã da folha

---

alexa.. noticias cbn; alexa noticias importantes

---

"Alexa, qual a noticia do dia?" Ou "alexa quais as novidades?"

---

Alexa quais são as notícias?

---

Alexa, quais a notícias do dia?

---

Uso automação para notícias no dia a dia ativando com "Alexa, bom dia!"

---

As notícias mais importantes do dia

---

Alexa, quais as novidades? | quais as novidades do G1 | quais as novidades da CNN

---

Alexa, últimas notícias

---

Alexa, bom dia

---

Okay Google, tocar notícias. Okay Google, ouvir notícias de esportes/política/tecnologia

---

Peço por notícias do dia!

---

Alexa, bom dia (Ela me traz as principais notícias do dia)

---

Alexa, notícias do dia

---

"Alexa, quais as notícias do dia?"

---

Alexa, quais as notícias? Alexa quais as novidades do g1?

---

Hey Google , quais as notícias principais do dia ?

---

Alexa me conte as noticias

Alexa, notícias do dia

---

Notícias do dia.

---

Alexa, quais as notícias do G1? / Alexa, quais as notícias do Estadão?

---

OK! Google, ual a previsão do tempo?? OK Google, o ue tenho pra hoje? OK Google, me fala as últimas notícias.

---

Alexa, quais as novidades de hoje? Alexa, quais as últimas notícias? Alexa, me atualiza das últimas notícias!

---

notícias do dia

---

Alexa, quais são as primeiras notícias?

---

Alexa me informe as últimas notícias

---

"Qual cidade aconteceu um terremoto hoje"

---

Alexa, play TSF radio

---

Alexa, "nome da chamada que busco" ou Alexa, principais notícias.

---

Solicitando na Alexa a busca

---

Alexa, notícias de hoje

---

palavras e veiculo

---

Alexa, quais as notícias de hoje?

---

Publico

---

Alexa, conte as notícias do G1

---

Alexa, me fale das notícias

---

Ok, Google! Me conta as novas.

---

Hey, Google! Ouvir notícias.

---

Alexa, leia as notícias do dia. Alexa, acessar rádio. Alexa, boletim diário

---

Alexa, tocar playlist inspiracional. Alexa, tocar playlist de givysson.

---

Alexa, quais as noticias do dia?

---

YouTube

---

Dou o comando de bom dia e ela ativa minha rotina lendo noticias e informações para o dia.

---

Por comando de voz

---

Alexa, ouvir notícias

---

Alexa, notícias do dia

---

Playlists

---

Alexa, notícias do G1 / UOL / CBN

Alexa, atualize-me com as notícias do dia

---

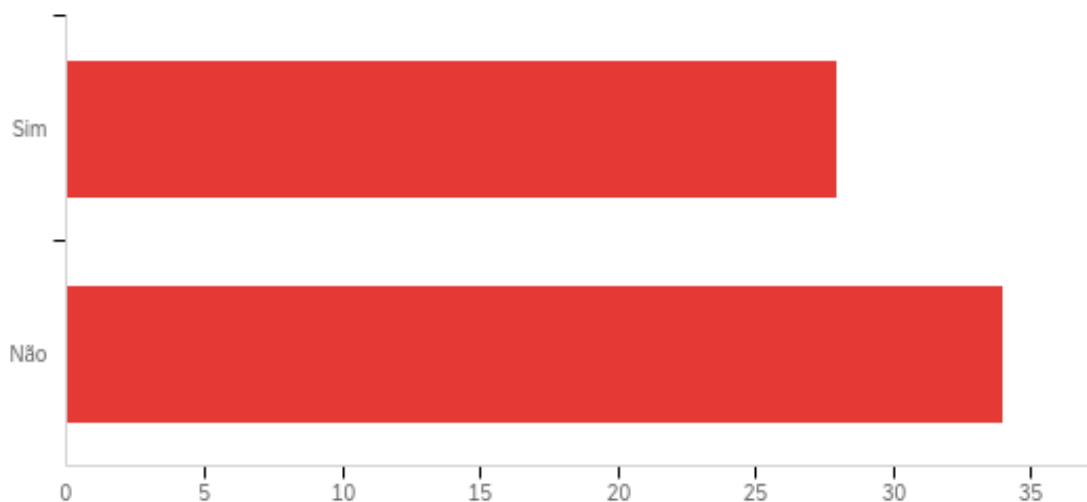
Alexa, quais são as notícias do dia?

---

Alexa, quais as notícias de hoje? Alexa, quais os destaques do g1?



**Q18 - Faz alguma busca por notícias usando o nome de um jornal ou de um site de notícias?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Faz alguma busca por notícias usando o nome de um jornal ou de um site de notícias?	1.00	2.00	1.55	0.50	0.25	62

#	Resposta	%	Contagem
1	Sim	45.16%	28
2	Não	54.84%	34
	Total	100%	62

**Q19 - Qual o nome do jornal ou site de notícias que mais usa em sua busca?**

---

Meio, Estadão

---

G1

---

G1

---

cbn

---

Cnn

---

G1, NE10

---

G1

---

G1, JORNAL DO COMMERCIO E JORNALISTAS INDEPENDENTES

---

g1

---

Rádio jornal, G1 e UOL

---

G1 e Estadão

---

TSF

---

Mynews, Intercept, g1 e uol

---

CBN Recife

---

folha de sao paulo

---

Publico

---

G1

---

G1

---

Rádio Jornal

---

CBN, Folha de São Paulo, CNN.

---

Folha de São Paulo/ jornal do comércio

---

G1, Canal Tech e CBN.

---

CBN

---

G1

---

Globo, diario de Pernambuco, jornal do comércio

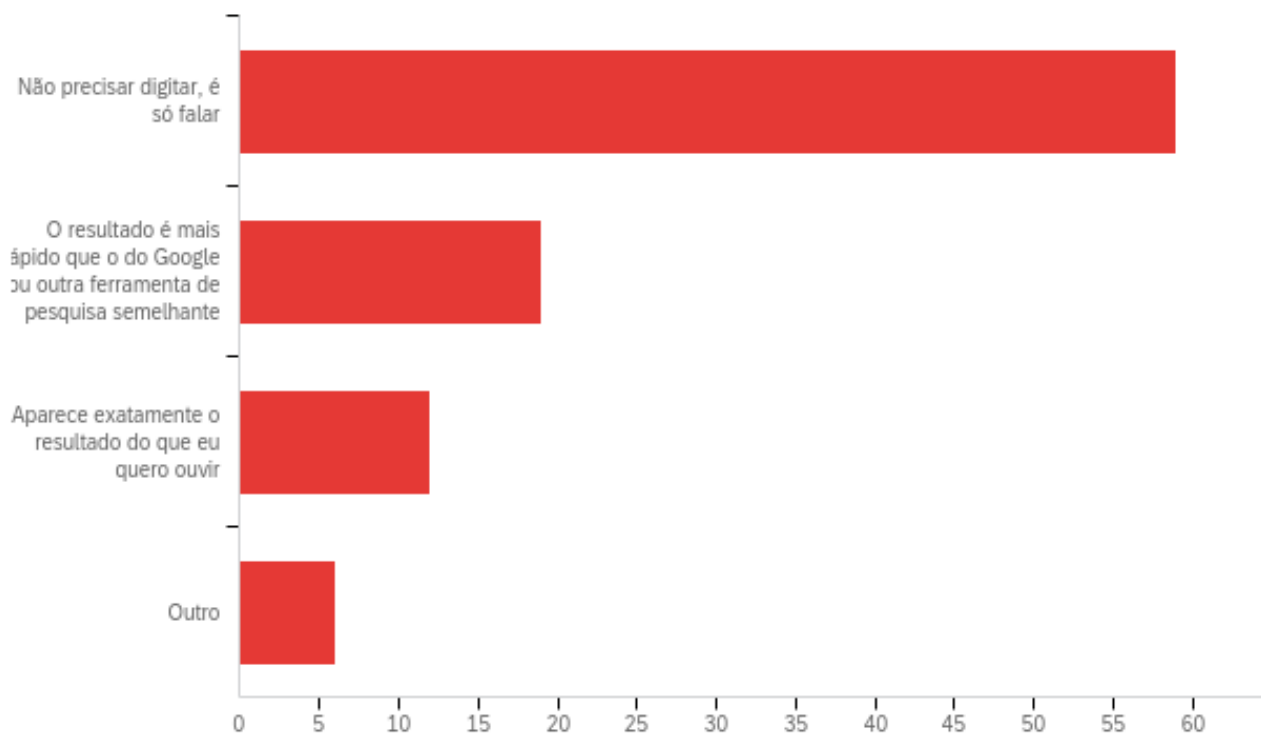
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CBN

---

g1

**Q20 - Qual a vantagem de usar esses aparelhos para buscar notícias?( pode escolher mais de uma opção)**



#	Resposta	%	Contagem
1	Não precisar digitar, é só falar	61.46%	59
2	O resultado é mais rápido que o do Google ou outra ferramenta de pesquisa semelhante	19.79%	19
3	Aparece exatamente o resultado do que eu quero ouvir	12.50%	12
4	Outro	6.25%	6
	Total	100%	96

**Q21 - Escreva então qual a vantagem.**

Escreva então qual a vantagem.

---

Poder ouvir minhas notícias enquanto realizo outras atividades em casa

---

Ele já fala um resumo das principais notícias

---

consigo fazer outras coisas enquanto escuto as notícias

---

Fazer alguma outra atividade enquanto escuto as notícias

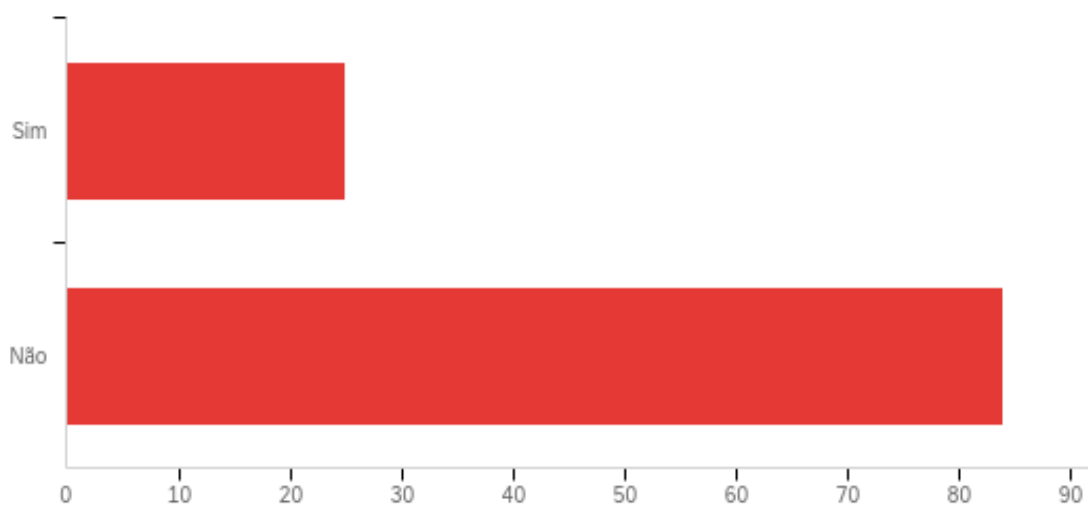
---

Vincular a busca a algum podcast e escutar enquanto faço outras atividades

---

Apesar de estar na primeira opção, o melhor é não precisar interromper nenhuma atividade, além do fato dela captar a voz a metros de distância.

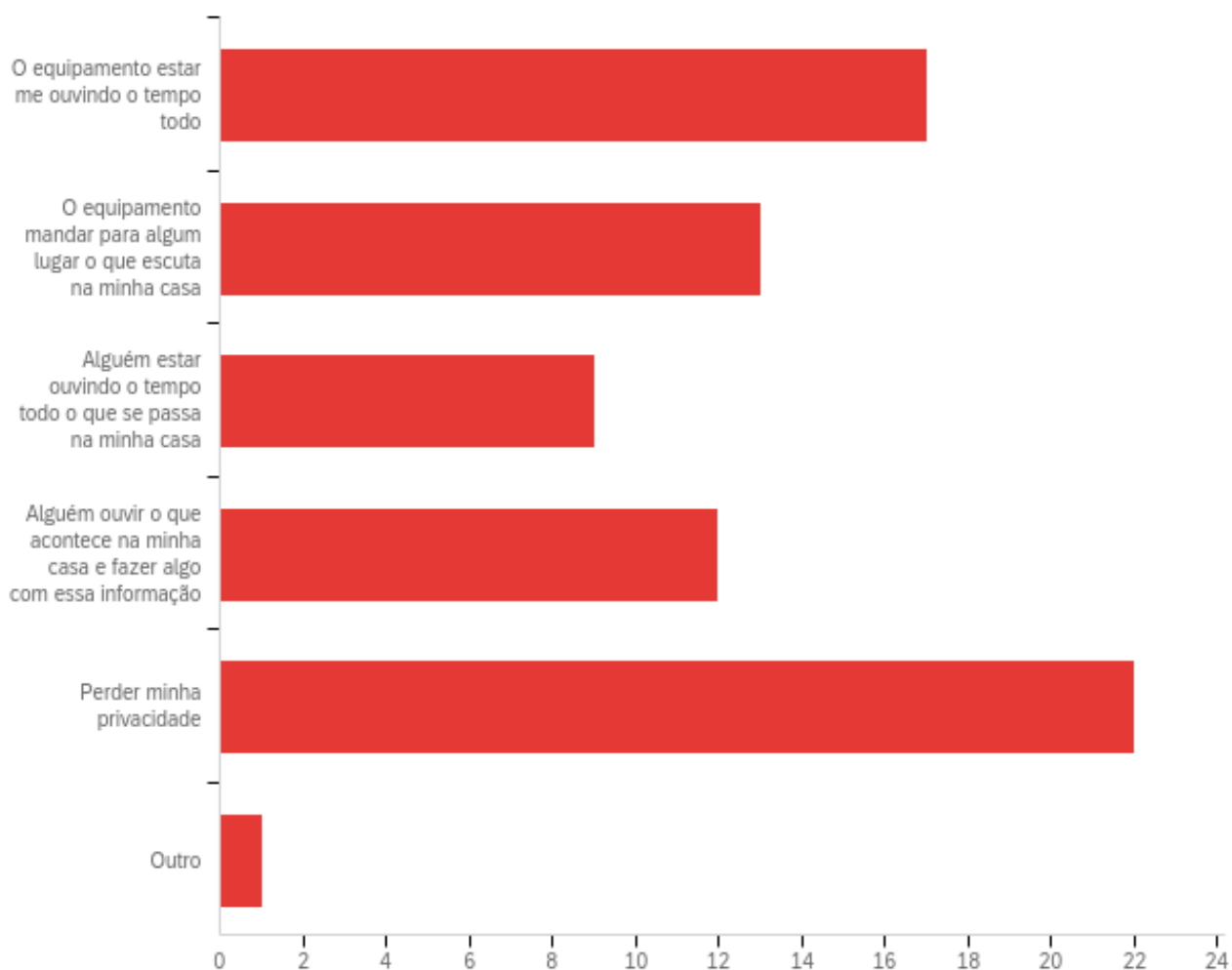
**Q22 - Tem algum tipo de receio ou preocupação de usar esses aparelhos?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Tem algum tipo de receio ou preocupação de usar esses aparelhos?	2.00	3.00	2.77	0.42	0.18	109

#	Resposta	%	Contagem
2	Sim	22.94%	25
3	Não	77.06%	84
	Total	100%	109

### Q23 - Qual receio? (Pode marcar mais de uma opção)



#	Resposta	%	Contagem
1	O equipamento estar me ouvindo o tempo todo	22.97%	17
2	O equipamento mandar para algum lugar o que escuta na minha casa	17.57%	13
3	Alguém estar ouvindo o tempo todo o que se passa na minha casa	12.16%	9
4	Alguém ouvir o que acontece na minha casa e fazer algo com essa informação	16.22%	12
5	Perder minha privacidade	29.73%	22
6	Outro	1.35%	1
	Total	100%	74

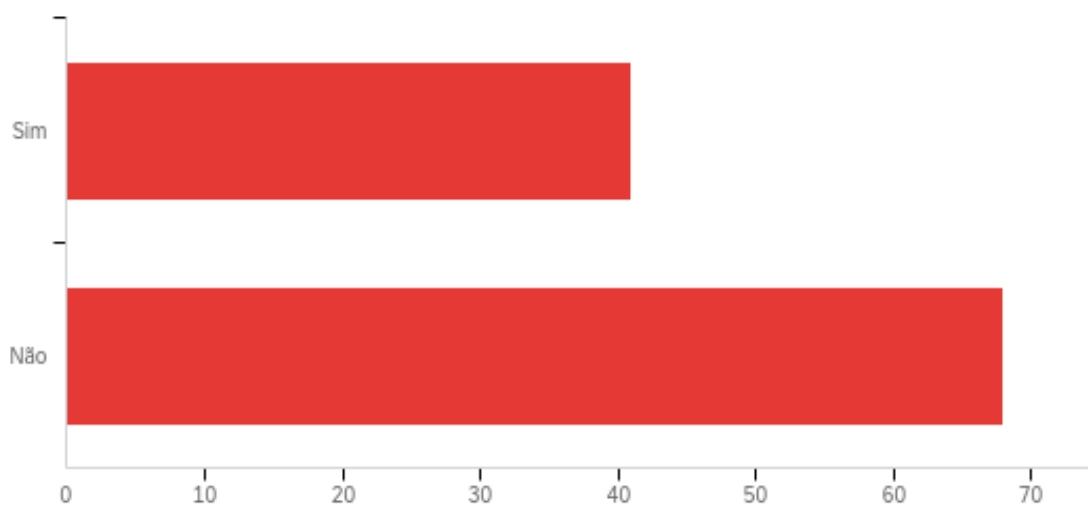
**Q24 - Qual seu outro receio de usar esse equipamento?**

Qual seu outro receio de usar esse equipamento?

---

Algoritmos formando meu perfil para tentar manipular como recebo informação e como formo minha opinião

**Q25 - O aparelho já ativou-se sozinho, sem você pedir nada a ele?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	O aparelho já ativou-se sozinho, sem você pedir nada a ele?	1.00	2.00	1.62	0.48	0.23	109

#	Resposta	%	Contagem
1	Sim	37.61%	41
2	Não	62.39%	68
	Total	100%	109



## Q26 - Conta-me essa situação. O que aconteceu?

Conta-me essa situação. O que aconteceu?

Enquanto conversava com minha esposa ou amigos, por várias vezes o google ofereceu subitamente respostas ou resultados sem ter sido ativado, o que resultou em comentários aleatórios e desconexos com o contexto. Isso gera insatisfação e receio sobre violação de privacidade

Começou a tocar música

Já acendeu sem eu interagir com ela

Já aconteceu mais de uma vez. As vezes, palavras semelhantes ativam o dispositivo. Já aconteceu também do som da TV ativar o aparelho.

Só ouvi ela desligando a TV, mas contactei o suporte e eles resolveram.

O aparelho entende que era para fazer uma busca enquanto eu conversava ao telefone no meu quarto.

Ativou o modo de escuta sem que eu desse o comando,as n aconteceu nada, eu ri e desativou normalmente a escuta

Ela as vezes coloca musica sozinha. Ou eu dou bom dia e ela reslonde "nao" o que nao faz muito sentido

O indicador de ativação do aparelho acendeu sem que fosse falada a palavra de ativação e permaneceu acesa por algum tempo (cerca de meia hora). Não sei se estava atualizando ou apenas escutando o ambiente.

A luz da alexa acendeu sem nenhum pedido

Barulho aleatório

Estávamos conversando perto dela e de repente ela buscou uma palavra da nossa conversa

Algum programa que assistia na TV falou o nome dele e ela ativou sozinha

Assistindo filmes e séries, as vezes ele aciona pois o personagem fala algo parecido com sua ativação por voz.

Estava conversando com meu marido e o dispositivo disse que não entendeu a pergunta, mas não estávamos pedindo nada a ele.

Conversando, o aparelhou achou que havíamos chamado ele.

Acontece com alguma frequencia.

Começou a cantariam música sozinha

as vezes com a tv ligada ele entende algo parecido com ok Google

Ao dizer uma palavra qualquer ele percebeu Alexa e activou

Ela respondeu a algo sem eu ter perguntado

Não lembro

Falei alguma palavra parecida com Alexa e ela ativou

Acredito que eu deixei alguma função programada que não me recordo

Vendo TV, as vezes ela fala que não entendeu. Ativou sozinho por conta da voz da TV.

---

Conversar com alguém pode ser interpretado como pedido pelo Google assistant

---

Ligou de madrugada tocando música

---

A vezes quando alguém fala alexa em algum vídeo ou na tv, as vezes até mesmo quando o nome é parecido como peça por exemplo

---

Estava assistindo um filme e alguém falou uma frase parecida com a frase de ativação.

---

Ela me ouviu falando e disse que não entendeu o que eu queria, mesmo sem eu ter chamado o nome dela

---

Alguém falou algo e ele ativou

---

O aparelho fica na sala então algumas vezes enquanto converso com alguém ou até mesmo quando passa algo na TV o aparelho já ativou "sozinho"

---

Achava que estava desativado, e numa conversa com marido ele falou rsrs estava ouvindo tudo.

---

Durante uma conversa, alguma palavra teve sonoridade próxima ao nome Alexa. Ela começou a ativar as skills de notícias

---

Eu disse algo parecido c alexa e o aparelho achou q era p ativar

---

Com o Alexa, as luzes estavam piscando

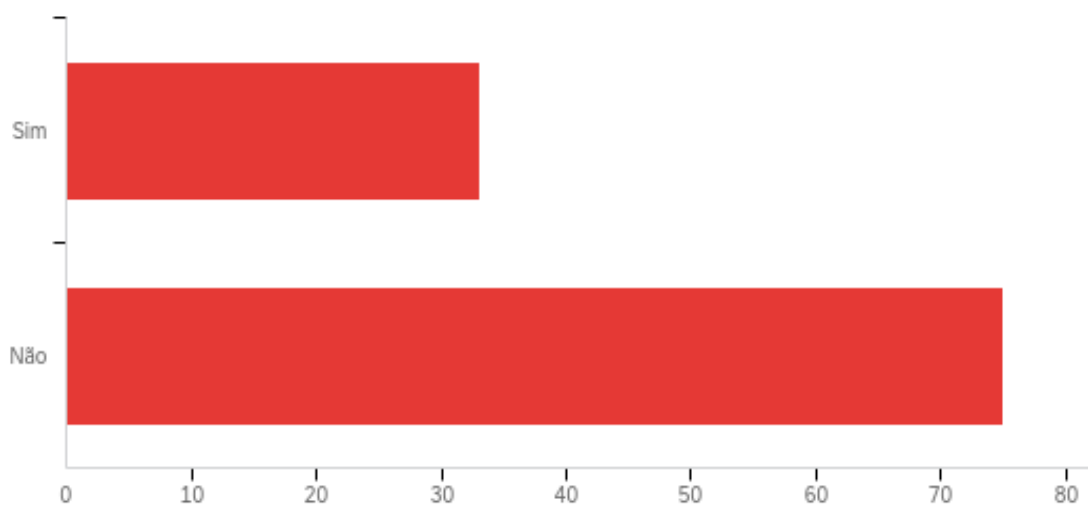
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As vezes alguém fala alguma coisa e ele entende que foi acionado, e executa ações tipo tocar uma música nada a ver.

---

A Alexa as 21 horas informou que era hora de dormir.

**Q27 - Sente que o equipamento tem alguma dificuldade de compreender português?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Varição	Contagem
1	Sente que o equipamento tem alguma dificuldade de compreender português?	1.00	3.00	1.71	0.48	0.23	109

#	Resposta	%	Contagem
1	Sim	30.56%	33
2	Não	69.44%	75
	Total	100%	108

## Q28 - Por que você tem essa impressão?

Uso em português e inglês. Embora português seja minha língua nativa, o google responde com mais frequência que "não me entendeu" em português do que inglês

Algumas palavras são entendidas como se fossem outras

Algumas vezes preciso repetir o comando mais de uma vez.

O aparelho não compreende a palavra usada na busca.

Confunde comandos, nome de música ou canal solicitado

Pedi uma musica e nao entendeu

As vezes quando eu pergunto a distância para uma cidade do interior ela não entende o nome

Porque ela não tem um Banco de dados amplo alem da questão do sotaque que ela pode ter dificuldade

Existem vários comandos não entendidos pela Alexa

Erro em buscas

As vezes é preciso repetir algumas vezes

Eu uso o aparelho em inglês. Quando peço pra tocar música de artista brasileiro é sempre complicado.

Ela frequentemente responde que não entendeu

porque não usa português

Porque as vezes ele não entende a palavra ou frase certa

tem que repetir

Tenho que falar alexa umas duas vezes e repetir o que falo

Confunde as palavras que eu digo.

Algumas palavras são confundidas.

As vezes ela não compreende coisas simples

As vezes ela não identifica bem a pronúncia e pontuação

Porque nem sempre ativa meu pedido.

Por pedir algo e ela não corresponder

Ela não entende palavras simples e ditas próximas ao aparelho

Por conta do regionalismo da linguagem.

Algumas palavras são entendidas erradas. Mas não é muito

**Q29 - Qual foi a palavra mal interpretada pelo aparelho? O que você disse e o que ele entendeu?**

Em geral, o google me entende errado quando busco por receitas e ingredientes

Algumas músicas em específico

A palavra Parar, ela normalmente não entende.

Foi a música "carimbó do macaco" do artista Pinduca

Desligar / Reiniciar

Não lembro

Garanhuns

Difícil lembrar, mas já aconteceu

Não lembro

Não lembro

Não lembro

Nomes de músicas

Chico Buarque, por exemplo.

Não lembro

todas

Não lembro

nao lembro

Despertador

Eu pedi pra ligar os equipamentos domésticos como televisão, ventilador e lâmpadas e ele entendeu que eu estava pedindo informações.

Eu disse "Liga o ventilador" e ela entendeu algo relacionado a algum jogador.

Pedi para ela acessar um podcast e ela não entendeu várias vezes

Ex: lembrar de colocar colírio. Ela fala lírio.

Citei o nome de uma música em português e ele não entendeu

Não lembro

Lâmpada do quarto

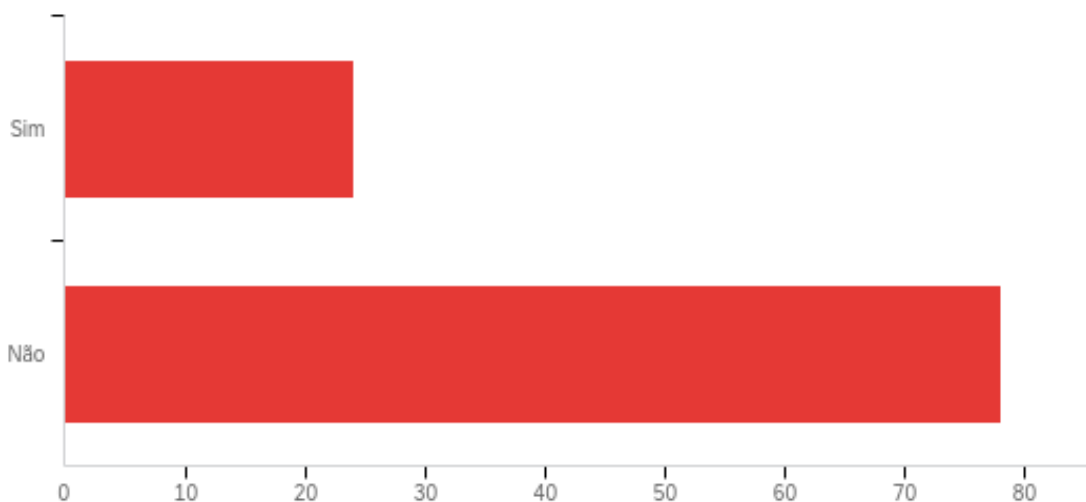
Agora não me recordo.

Pedi a música OGUN de Zeca Pagodinho e ela apresentou uma playlist de uma banda com nome semelhante (não lembro)

**Q30 - Quanto à linguagem do equipamento, classifique de 0 a 10 a sua experiência.**

#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	O quão robótica é a voz do equipamento? (0 nada robótica, 10 muito robótica)	0.00	10.00	4.49	3.17	10.05	102
2	O quanto o tipo da voz do equipamento o incomoda (0 nada, 10 muito)	0.00	10.00	1.81	2.90	8.39	102
3	Essa voz deveria ficar mais natural ao ouvido humano (0 nenhuma mudança, 10 deveria mudar muito)	0.00	10.00	3.38	3.25	10.59	102
4	Queria opção de escolher uma voz masculina para o equipamento (0 não, 10 muito)	0.00	10.00	2.25	3.30	10.92	102

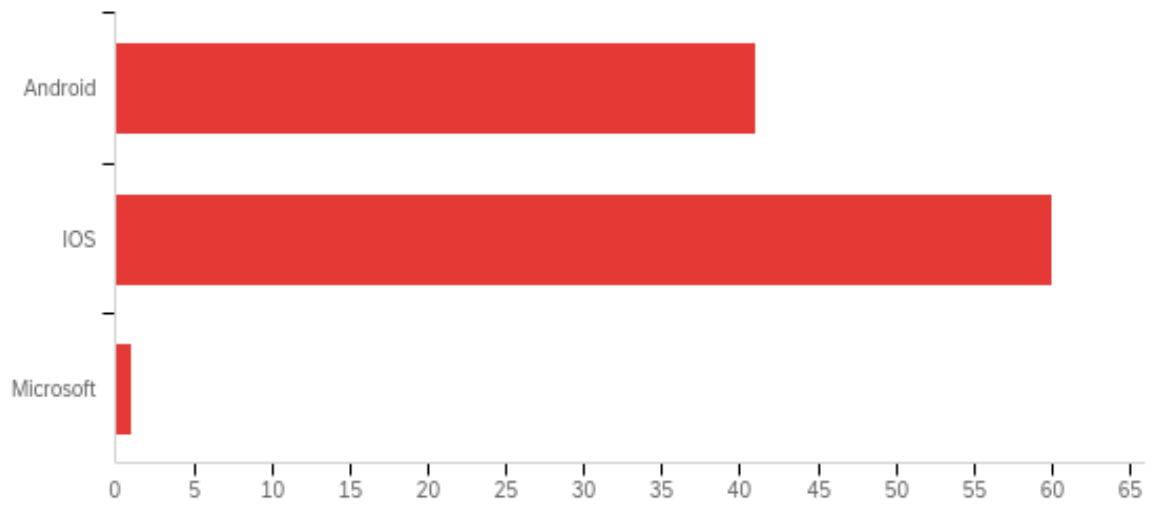
**Q31 - Os assistentes de voz dos smartphones entendem português melhor que esses equipamentos?**



#	Field	Mínimo	Máximo	Média	Desvio padrão	Variação	Contagem
1	Os assistentes de voz dos smartphones entendem português melhor que esses equipamentos?	1.00	2.00	1.76	0.42	0.18	102

#	Resposta	%	Contagem
1	Sim	23.53%	24
2	Não	76.47%	78
	Total	100%	102

### Q32 - Qual o sistema do seu Smartphone?



#	Field	Mínimo	Máximo	Média	Desvio padrão	Varição	Contagem
1	Qual o sistema do seu Smartphone?	1.00	3.00	1.61	0.51	0.26	102

#	Resposta	%	Contagem
1	Android	40.20%	41
2	IOS	58.82%	60
3	Microsoft	0.98%	1
	Total	100%	102



**Q33 - O que você gostaria de fazer, mas que Alexa/Google Nest/Google Home/ Apple Home não permitem ainda?**

Cálculos estatísticos e probabilísticos por comando de voz

Fala automaticamente em qualquer língua.

Uma conexão mais direta com outros eletrônicos sem precisar de outros equipamentos auxiliares

Ligações

Utilizar as skills utilizadas nos EUA por exemplo

Por hora está sendo satisfatório

Pagar contas e transferir dinheiro.

Entender meu pensamento hahahah. Ou precisar de menos vozes.

No momento supre minhas necessidades

Usá-la sem fio.

Nada em específico

Por enquanto o que eles fazem é suficiente

Eu não sei usar todas as funcionalidades

Ligações telefônicas integradas com o celular (uso iPhone, não são compatíveis

Por enquanto, o que ela se propõe a fazer, ela faz

Não sei

Ainda não pensei nisso

Não sei

Nada

Google assistente ter um nome. conta família. Frases complexas continuadas por um E.

nao tenho ideia agora

Não tenho opiniao ainda sobre isso

Gostaria que minha echo show fosse como um tablet. Tivesse acesso a apps de maneira fácil como um tablet.

reconhecimento vocal e facial para segurança em porteiro eletrônico.

Controlar com eficiência meu estoque de alimentos em casa e poder extrair dados que me ajudem no planejamento das compras semanais/mensais.

Fazer bem listas de coisas a fazer

Drop in (intercomunicador) com outros endereços

Não pensei

Que eles cozinhassem

Nada, no momento.

Mandar mensagens no WhatsApp , dar comandos de abrir algumas funções no WhatsApp

Na verdade os outros dispositivos não tem tanta tecnologia quanto a Alexa e isso impossibilita a interação entre eles.

Busca por dados de pessoas, como por exemplo fazer pesquisas sobre pessoas anônimas através de seus registros na internet.

Chamar Uber para endereços favoritos, realizar compras pelo iFood/Uber Eats/Rappi em restaurantes ou mercados favoritos

Gerenciamento mais inteligente de compromissos

Até o momento nada!

Seria interessante uma inteligência artificial mais próxima da realidade.

Acender o fogão

Como ainda não domino todas as funcionalidades, ainda não tenho essa resposta.

Nada

Nada que eu possa pensar agora.

Nada

A funcionalidade de integração ainda maior com outros equipamentos, além da função fora da tomada, permitindo que seja um aparelho também móvel.

Realizar mais ações em uma ativação só. Ex: Ligue a tv no PS4, luz em 50% e a luminária azul em 100%.

Randomizar músicas numa playlist, ela sempre começa pela primeira música.

Que ela não precisasse tá conectada em um único telefone

Nada

Conectar a máquina de lavar 🧺

Ligação

Nada até agora.

Não sei

Ouvir a Bandnews FM, ela não acha

Marcar exames, comprar ingressos

Reconhecimento facial pra aumentar a interação, transmitir mensagens a terceiros, localizar determinado telefone de um estabelecimento...

Tipo enviar uma mensagem pra alguém específico, reconhecimento facial já pra interagir com você, usar na bateria!

Notícias

Conversar

conversa contínua em português, sem ter que chamar ela para cada ação.

Nada em especial

Elas não fazem críticas

Serviço banco!

nada

Até agora, todas as minhas necessidades foram atendidas

Não sei

Comunicar de forma mais direta, impressão, imagem e vídeo (tanto assistir quanto filmar)

Buscas mais específicas e diretas

Entender melhor algumas perguntas e conseguir me dar a resposta correta

Tocar playlist do Spotify em ordem aleatória

Adicionar alguns apps ao google home.

Ficare ligados à bateria interna

ainda nao precisei

Queria que a Alexa estivesse no dispositivo IOS e no carro. Que estivesse em todos os lugares.

Compras on-line

Interação com sistemas IVR

Reconhecimento facial

Ser mais compatível com outros apps

Fazer o link com a agenda do Google

Comandos básicos sem internet, bateria interna

Poder da mutiplas ordens, por exemplo: ligue a tv e o ar-condicionado

Enviar mensagens, fazer compras, ouvir lembretes sem precisar pedir,

Enviar mensagens.

Ligações para quem não tem o aparelho

Algumas interações com os aparelhos de eletrodomésticos

Nada

Por enquanto nada.

Tudo que eu faço a alexa ela dá conta.

Tenho o Google Home o Google Hub. O Google Hub ainda não funcionam em português.

Não sei ainda

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Controlar melhor as listas de podcasts

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Operações bancárias entre pessoas

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Reservas em restaurantes.

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Realizar compras e transações bancárias on-line per meio do reconhecimento de voz.

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Ser mais responsivos e aprender com as solicitações

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Pesquisar curiosidades do dia a dia. Tipo: porque as palavras ditas como palavrões são chamadas desta forma.

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Entender perguntas sequenciadas

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Tarefas domésticas

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Nada

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Ouvir o áudio de vídeos nos aparelhos conectados, como ouço as músicas

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jj

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Ter liberdade para editar respostas pre-programadas nas rotinas

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Não sei responder a sua pergunta. Comprei recentemente e ainda estou me adaptando porque eu gosto de ouvir música do Spotify e a Alexa só entra no Amazon Music, mesmo eu tendo mudado na configuração.

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Ler meus emails e mensagens de whatsapp para responder sem precisar digitar

### Q34 - A pandemia influenciou de que forma a compra desse equipamento?

Na Pandemia quis transformar o convívio em casa mais interessante.

Sim, com mais tempo em casa iniciei um mini projeto de automação residencial.

Influenciou porque eu queria mudar a forma com que eu lido com meus equipamentos eletrônicos no dia a dia.

Desconto

Um entreterimento

Por eu estar mais em casa e me faz cia e facilita em algumas questões

Sim, pois estou totalmente home office

sim.

Home office e isolamento em casa nos forçaram a usar tecnologia para aproximar pessoas e facilitar o dia-dia.

Não muito, mas por ter visto mais promoções, mais pessoas comentando, decidir testar.

Passo mais tempo em casa

Como o lazer foi afetado, a Alexa se tornou uma interação para ouvir as musicas

Gosto muito de música, e a alexa facilita

A forma de ter mais um dispositivo para interagir

Sim, foi uma forma de distração a automação da minha residência

Marketing!

Maior tempo em casa

Acredito que o período que passamos em quarentena, nos obrigou (positivamente) a realizar melhorias nos ambientes que mais frequentamos. Por sem um aparelho que se acomoda ao ambiente desejado, acredito que a venda desses equipamentos cresceu muito.

Nenhuma

Sim

Não.

Como fiquei mais tempo em casa, inclusive trabalhando, vi uma oportunidade para aproveitar melhor essa tecnologia. Me adaptei muito bem e hoje Alexa faz parte do meu dia-a-dia!

Não

Quero deixar a minha casa mais inteligente

Melhorar o entretenimento em minha casa.

Muita propaganda

Muito tempo em casa, comecei a perceber que uma assistente ajudaria muito automatizando algumas coisas do meu dia, além também de vê mais gente falando sobre durante a pandemia

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Tive mais tempo para pesquisar e comprar na promoção.

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Antes da pandemia eu não passava muito tempo em casa. Com o isolamento decidi reformar e tornar tudo inteligente, tvs, luzes, tomadas e console.

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Sim

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Passei a trabalhar em casa e por isso comprei pra ouvir música.

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Oportunidade na black

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procura por matar o tédio e a solidão

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Totalmente, por ter passado a trabalhar em casa.

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Não sei.