

European Media Markets

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The European Smart Speaker Market:

Challenges, future, and its influence on media consumption

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Smart speakers have gained increasing popularity since 2012 and the European market is no exception. These devices have become routinely embedded in everyday life, and with more devices and features available, people are becoming increasingly dependent on them, giving rise to socio-technological challenges, such as privacy concerns and their impact on media consumption. This White Paper aims to critically analyse the challenges, future, and influence of smart speakers on media consumption from the European media market perspective.

Highlights

The European smart speaker market has great potential, with Germany and the UK leading in frequent usage, and a projected household penetration rate of 57 million by 2024.

The smart device market is dominated by Google, Apple and Amazon. Small scale manufacturers see interoperability as a key solution in creating a more equitable playing field.

Smart speakers are transforming traditional media consumption habits, becoming a popular source of general information and music.

Despite rapid market growth in recent years, smart speakers are lagging behind compared to other smart devices. Some of the roadblocks faced by smart speakers are privacy concerns, localisation, languages, discoverability issues, and lack of intelligent living ecosystem.

1. Introduction to smart speakers

A smart speaker is a wireless device that can be activated through voice commands and interact with its user through voice. They can make conversations like humans, personalise responses based on user profiles, remember preferences to offer solutions and recommendations, and even predict user's future needs. With AI-based technology, smart speakers can continuously learn and improve themselves to adapt to their users.¹ Major players in the market include Amazon (Alexa), Google (Google assistant), and Apple (Siri), who have been releasing competitive smart speakers since 2012. Amazon's Echo smart speaker product line has been the most popular smart speaker in terms of consumer ownership over the past four years². Chinese tech giants, like Baidu, Alibaba and Xiaomi have also entered the market in

¹ Bawack, R., Wamba, S. F., & Carillo, K. D. A. (2019, August). Artificial Intelligence in Practice: Implications for Information Systems Research. Americas Conference on Information Systems, Mexico.
https://www.researchgate.net/publication/333853703_Artificial_Intelligence_in_Practice_Implications_for_Information_Systems_Research

² Statista. (2022). Smart speaker ownership by brand in the U.S. <https://www.statista.com/forecasts/997149/smart-speaker-ownership-by-brand-in-the-us>

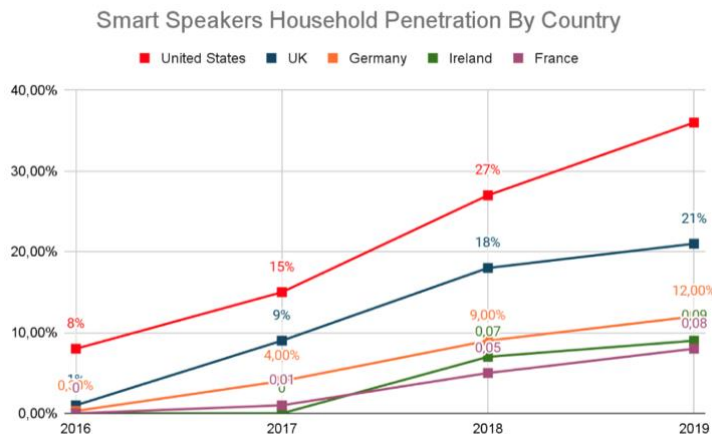
2017.³ users use smart speakers daily and ask them to perform various tasks, which can be categorised into two broad types:⁴

1. **As an information centre** for checking weather forecasts, setting reminders/ alarms, listening to news broadcasts, playing music, and telling stories.
2. **As a control centre** to connect with smart home appliances such as lighting, TV, air conditioning, or air purifiers.

When used as information centre, smart speakers become tools for experiencing traditional media in a new or easier way. Smart speakers have become a popular source for general information and news, replacing traditional methods like reading newspapers or searching online. Rather than reading scientific journals or consulting Wikipedia, people now turn to their smart speakers for information. Additionally, smart speakers are frequently used for playing music, offering a new and convenient way to enjoy music while being engaged in activities like cooking.

Recent research⁵ identified several characteristics that influence users' adoption of smart speakers, including ease of use, perceived usefulness, system quality and diversity, enjoyment, user technology optimism, and perceived risks.⁶ Among these, joy emerges as the most significant factor. For instance, a higher level of satisfaction with Amazon Echo is linked to a higher degree of personification, highlighting the anthropomorphic nature of these devices. Smart speakers are often seen as forming a new type of relationship through social contact and human-like communication, leading some scholars to argue that they are designed as "relational artefacts" to encourage people to form relationships with them. Smart speakers are often considered user-friendly for both children and elderly, as voice commands are simpler than navigating a smartphone interface.⁷ However, while children and the elderly may represent a significant segment of the smart speaker market, they are more vulnerable to socio-technical risks.

2. Economic impact of smart speakers



The global smart speaker market is highly valuable and currently undergoing rapid expansion. According to the Market Research Report (2020)⁸, the market is expected to reach USD 15.6 billion by 2025 (in comparison to USD 7.1 billion in 2020). The US is the largest market for smart speakers world-wide, with a projected household penetration rate of 75% by 2025.⁹

³ Team Counterpoint. (2020, October 16). China Smart Speaker Market Analysis. Counter Point Research. <https://www.counterpointresearch.com/china-smart-speaker-market-analysis-h1-2020/>

⁴ Bunyard, S. (2019). Assistance from Alexa: The social and material benefits of the Internet of Things. https://scholarcommons.scu.edu/engl_176/44/

⁵ Kowalczyk, P. (2018). Consumer acceptance of smart speakers: A mixed methods approach. *Journal of Research in Interactive Marketing*, 12(4), 418–431. <https://doi.org/10.1108/JRIM-01-2018-0022>

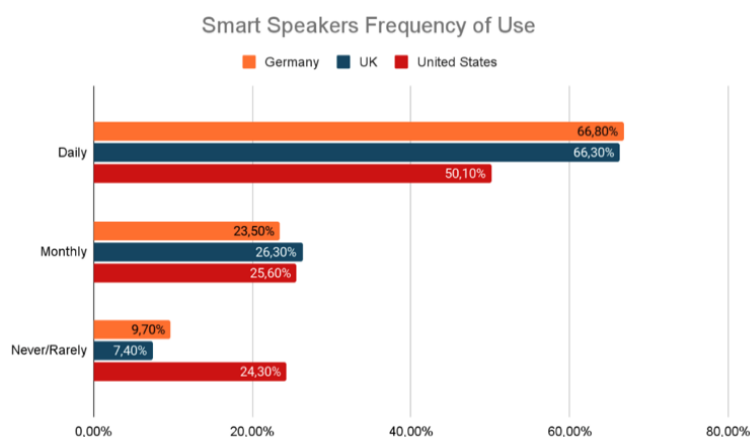
⁶ Purington, A., Taft, J. G., Sannon, S., Bazarova, N. N., & Taylor, S. H. (2017). "Alexa is my new BFF": Social Roles, User Satisfaction, and Personification of the Amazon Echo. *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 2853–2859. <https://doi.org/10.1145/3027063.3053246>

⁷ Sciuto, A., Saini, A., Forlizzi, J., & Hong, J. I. (2018). "Hey Alexa, What's Up?": A Mixed-Methods Studies of In-Home Conversational Agent Usage. *Proceedings of the 2018 Designing Interactive Systems Conference*, 857–868. <https://doi.org/10.1145/3196709.3196772>

⁸ Markets and Market, 2020. Market Research Report. Smart Speaker Market with COVID-19 Impact Analysis by IVA (Alexa, Google Assistant, Siri, DuerOS, Ali Genie), Component (Hardware (Speaker Driver, Connectivity IC, Processor, Audio IC, Memory, Power IC, Microphone) and Software), Application, and Region - Global Forecast to 2025.

⁹ Larichia, F., 2022. Smart speaker household penetration rate U.S. 2014-2025. Statista. Available in: <https://www.statista.com/statistics/1022847/united-states-smart-speaker-household-penetration>

The European market is also of great importance for this technology. A report by Voicebot.ai (2021)¹⁰ showed that consumers in Germany and the UK are using their devices more frequently than consumers in US, indicating the potential of the European market for this technology. Furthermore, the household penetration in Europe is constantly increasing, and it is expected that by 2024, over 57 million EU households will have a smart speaker.¹¹ Smart speakers are also part of a broader market of smart home devices, which has experienced strong growth in recent years.¹² This trend is driven by various factors, including the increasing adoption of home automation technologies and the rising demand for connected devices. According to the IoT consumer sector inquiry launched by the EU Commission in July 2020, the revenue for the EU smart home market is projected to reach EUR 38.1 billion by 2025,¹³ reflecting the significant opportunities for businesses operating in this sector.



Music is one of the primary uses of smart speakers. And, the music industry is increasingly influenced by these devices. A report made by Music Ally (2018)¹⁴ indicated that smart speakers are changing the way users discover new music through voice commands. For example, users can ask the system to find music for a specific mood or occasion, compared to traditional search-based

methods. This shift in music consumption behaviour has influenced music labels and artists. They need to investigate how to decode algorithms to ensure their music is discovered and recommended by smart speakers. For instance, music labels can optimize their metadata and track attributes to improve their chances of being recommended by smart speakers. Moreover, the dominance of smart speaker companies in music streaming market raises concern about platform control and competition. As smart speaker brands often direct users to their own platforms, there is a risk of disempowering users and limiting their choices. This calls for regulatory policies that promote fair competition and prevent abusive control by dominant players in the market.

3. Challenges for the smart speaker market

Despite promising growth opportunities for the smart speaker market, there are several challenges holding back the adoption of smart speakers.

- (1) One of the biggest roadblocks to smart speakers' market growth can be attributed to rising concerns over data privacy.¹⁵ People are becoming more watchful of the information they are release through these devices. In recent years, consumer data privacy laws have tightened, and scandals surrounding both Google¹⁶ and Amazon¹⁷ have further eroded trust

¹⁰ Kinsela, B. (2021). Consumers in Germany and the UK use their Smart Speakers Much More Than the U.S. Voicebot.ai. Available in: <https://voicebot.ai/2021/07/05/consumers-in-germany-and-the-uk-use-their-smart-speakers-much-more-than-the-u-s/>

¹¹ Tiwari, M. & Gillet, F. (2020). [Report] By 2024, 57.5 Million EU-5 Households Will Have Smart Speakers. Forrester. Available in: <https://www.forrester.com/report/By-2024-575-Million-EU5-Households-Will-Have-Smart-Speakers/RES158859>

¹² IDC (2021). Amazon Regains the Number 1 Spot in Another Successful Quarter for the European Smart Home Market, Says IDC. Available in: www.idc.com/getdoc.jsp?containerId=prEUR148282621

¹³ European Commission (2022). Final report - sector inquiry into consumer Internet of Things. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_402

¹⁴ Music Ally (2018). [Report] Everybody's talkin': Smart speakers & their impact on music consumption. Available in: <https://musically.com/wp-content/uploads/2018/03/SmartSpeakersFinal.pdf>

¹⁵ Lutz, C., & Newlands, G. (2021). Privacy and smart speakers: A multi-dimensional approach. *The Information Society*, 37(3), 147–162. <https://doi.org/10.1080/01972243.2021.1897914>

¹⁶ Caputo, D., Verderame, L., Ranieri, A., Merlo, A., & Caviglione, L. (2020). *Fine-hearing Google Home: Why silence will not protect your privacy*. <https://doi.org/10.22667/JOWUA.2020.03.31.035>

¹⁷ Lynskey, D. (2019, October 9). "Alexa, are you invading my privacy?" – the dark side of our voice assistants. *The Guardian*. <https://www.theguardian.com/technology/2019/oct/09/alexa-are-you-invading-my-privacy-the-dark-side-of-our-voice-assistants>

in smart speaker companies. Smart speakers' companies need to be more transparent with their privacy approaches to gain consumers' trust.

- (2) Another significant challenge for smart speakers is language localization, which is especially the case for European Market with its lack of uniformity in language. European countries have different languages, cultures, making it difficult for smart speaker manufacturers to develop products that are suitable for all markets. The language localization process can be costly and requires an elaborate development process. The process of localizing languages involve not only translation but also incorporating the relevant accents and cultural nuances to make the experience more authentic for users.¹⁸ Despite Google's efforts to localize its virtual assistant into 30 languages, as of 2021 Google could only achieve only half of it.¹⁹ Additionally, while natural language processing has come a long way in recent years, there is still room for improvement, particularly in the accuracy of voice recognition and the ability to understand different accents and dialects.
- (3) Discoverability issues are another challenge for smart speakers, which causes engagement and retention issues. According to Bentley and colleagues (2018),²⁰ users settle on a set of commands with their speakers and don't try new features. Smart speaker companies need to need to incentivize users to try new features and collaborate with other companies to build intelligent ecosystems that work seamlessly across multiple devices and services.²¹ Smart speakers are often used as the central hub for smart home devices, and it is essential that they can seamlessly integrate with other devices to provide a smooth user experience. This can also help smart speakers become more integrated with the culture around gaming, shopping, and other activities.

4. Smart speakers as gatekeepers

As mentioned, the smart speaker market is currently dominated by global players: Google, Apple and Amazon, which act as gatekeepers and hold significant market share. A 2022 report for the European Commission²² found that the vertical integration of these dominant players has created a lock-in effect, leaving small-scale manufacturers with little choice but to align their products with these established ecosystems. Discoverability and prominence of IoT services also contribute to the competitive advantages these companies enjoy, as they act as intermediaries between users and services offered within the ecosystem.

As a result, Google, Apple, and Amazon retain control over user data gathered by these devices and use it to tailor consumer offerings. However, Interoperability will play a key role in opening the market for new players to produce innovative products and improve consumer choice. In the EU, Standards Developing Organisations (SDOs), such as European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) aim to facilitate interoperability in the IoT sector. But government regulation may be needed to level the playing field for small-scale manufacturers.

Smart speakers also act as gatekeepers for media consumption, especially in the music industry. By recording and analysing user behaviour and preferences through conversations, smart speakers can produce user-curated suggestions not only for music but also other media content.²³ However, the shifts from mass communication towards personalisation puts forth the question of universality and cultural diversity, as well as the role of algorithms in shaping user

¹⁸ Perez, S. (2018). Google Assistant will support over 30 languages by year-end, become multilingual. *TechCrunch*.

<https://social.techcrunch.com/2018/02/23/google-assistant-will-support-over-30-languages-by-year-end-become-multilingual/>

¹⁹ Gorskaya, V. (2021, November 11). Smart Speakers Localization. *TCLoc Master's*. <https://mastertcloc.unistra.fr/2021/11/11/smart-speakers-localization/>

²⁰ Bentley, F., Luvogt, C., Silverman, M., Wirasinghe, R., White, B., & Lottridge, D. (2018). Understanding the Long-Term Use of Smart Speaker Assistants. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 2(3), 1–24. <https://doi.org/10.1145/3264901>

²¹ Canalys. (2020). *Canalys Resources—European consumers set to embrace "intelligent living."* <https://canalys.com/resources/European-consumers-set-to-embrace-intelligent-living->

²² European Commission (2022). Final report - sector inquiry into consumer Internet of Things. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_402

²³ Smith, K. T. (2020). Marketing via smart speakers: What should Alexa say? *Journal of Strategic Marketing*, 28(4), 350–365. <https://doi.org/10.1080/0965254X.2018.1541924>

preferences. Sørensen (2020)²⁴ argues that the assumption that personalization serves the interests of the users is questionable, as it is difficult to keep producing useful or relevant information for the users as it will at some point reach a certain level of repetitiveness. While consumer choice is largely seen as the main driver for innovation, it raises the question of how these smart speaker devices shape our social and cultural consciousness. To address these challenges, it may be necessary to promote greater competition and diversity within the smart speaker industry, as well as to establish regulations to protect user privacy and security.

5. Conclusion

Recommendation 1 – Privacy

Smart speaker manufacturers and developers should prioritize data privacy and security to alleviate users' concerns about their personal information being compromised. Companies need to go beyond just complying with data protection regulations and increase transparency about their data handling policies.

Recommendation 2 – Localization of the languages and discoverability

The development of smart speakers should be focussed to comprehend more local languages is crucial for the European media market with its lack of uniformity in the language. Additionally, voice interface designers also need to research more to adapt discoverability support to user's experience level.

Recommendation 3 – Regulatory policies for market competition

Regulatory policies should be developed to promote fair competition and prevent abusive control in the smart speaker music streaming market. Interoperability is necessary to resist anticompetitive behaviour, and stricter guidelines are needed to create a level playing field for small-scale manufacturers.

Recommendation 4 – Impact on media consumption

Media companies in Europe must adapt to the rise of smart speakers as a primary source of news and information. This requires optimizing content for voice-enabled devices through the development of new formats. Furthermore, alternative ways are necessary to ensure content diversity and discoverability, given the influence smart speakers have on media consumption.

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²⁴ Sørensen, J. K. (2020). Personalised universalism in the age of algorithms. In P. Savage, M. Medina, & G. F. Lowe (Eds.), *Universalism in public service media* (pp. 191–205). Gothenburg: Nordicom, University of Gothenburg.