

**SCHWARZ**



**OPEN VOICE  
NETWORK**  
Voice for everyone

## About Schwarz Group

[Schwarz Group](#) is an international retailer with about 500.000 employees and 12,900 stores worldwide and specialist stores in 33 different countries. In the 2020 fiscal year, it generated a sales volume of EUR 125.3 billion. Schwarz Group, based in the Baden-Württemberg city of Neckarsulm, is essentially composed of the two retailer brands Lidl and Kaufland. In addition to its retail business, Schwarz Group has continuously expanded its portfolio to include production capacities for food. This includes, among other things, soft drinks, mineral water and private labels in the baked goods and ice cream sector. An own closed loop for PET- bottles was created. For many years now, Schwarz Group has been committed to collecting, sorting and reusing recyclable materials. The brand PreZero acts as the group-wide disposal and recycling service provider.

## About the Open Voice Network

The [Open Voice Network](#) (OVON) is a neutral, non-profit industry association dedicated to the development of technology standards and ethical use guidelines that will make voice technology worthy of user trust. It operates as an open-source community within the Linux Foundation, and is independently funded and governed, with active participation from more than 160 voice practitioners and enterprise leaders from 13 nations worldwide. Schwarz Group is a founding sponsor of the Open Voice Network, and serves on the OVON's managing Steering Committee.

Current OVON areas of research and development include interoperability (the passing of dialogs, data, context and controls between voice agents of different parentage), personal and commercial data privacy and use, voice-specific destination registration and management (akin to a Domain Name System for voice), and the recognition and management of synthetic voice.

## Introduction

Schwarz Group and the Open Voice Network welcome the opportunity to provide feedback to the European Commission's preliminary report on the sector inquiry into consumer internet of things. For Schwarz Group, a retailer, voice technology will reshape the relationship Schwarz has with its 5.6 billion unique customers per year.

There is no doubt about the fact that the usage of voice technology will rise significantly in the coming years. Whether on the move in the car or at home speaking to a smart speaker, consumers will use voice technology to add items to a shopping list to purchase groceries later, order products directly for to-the-home delivery, or seeking information of value to their family, diet, and health. Voice will be the primary digital interface going forward; the growth in technical capabilities – and the desire of brands such as Schwarz Group to protect its data and control its brand experience -- will result in a hybrid ecosystem of general-purpose voice assistants and independent voice assistants that demand assistant-to-assistant interoperability.

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Against this background, we currently observe certain shortcomings in relation to interoperability, brand protection and privacy which could hamper the uptake of this technology and could also endanger the user's trust. In order to overcome these flaws and ensure that the voice technology will benefit consumers as well as companies, Schwarz Group became a founding member of the [Open Voice Network](#), a non-profit organization which aims to develop standards and usage guidelines for voice assistant systems that are trustworthy, inclusive and open.<sup>1</sup>

### **General remarks**

The sector inquiry by the European Commission provides an accurate outlook on the future of voice assistants and the findings could ultimately inspire the upcoming (policy) rules, such as the Digital Markets Act or the Data Act.

The report recognizes the market dominance and "gatekeeping" role of a handful of general-purpose, proprietary voice assistants. The current lack of interoperability standards discourages new firms from entering the consumer IOT market, and as such, dampens innovation. This underlines the need for (ground) rules, which helps to open up this market going forward.

We are convinced that by creating standards for interoperability, more players of general-purpose voice assistants or independent voice assistants will be able to enter the market. Interoperability standards will also encourage the growth of firms that create consumer IOT devices, systems, and services. Consequently, this will lead to market growth, and will benefit the user by negating vendor lock-in (and data control). It would reduce the investment needed of European providers as well as start-ups and SMEs, which will create a growing ecosystem.

### **Standards**

In relation to standards, the preliminary report points out a majority of respondents have indicated that standards are missing<sup>2</sup>. At the same time, respondents agree that standards should be implemented in a way which consolidates already existing standard setting efforts and prevents duplication.<sup>3</sup>

We believe that standards are necessary in relation to brand protection. In the World Wide Web a Domain Name System (DNS register) ensures that a user will find a website when typing in a unique web-address. Such a standard-setting register is currently missing when it comes to voice assistants. This could lead to a decreased discoverability for European brands and could ultimately prevent customers from reaching the requested service or brand when using a voice assistant. This becomes extremely evident when a brand is pronounced in the same way but written differently. A potential Voice Registry System could ensure that the users find the correct European brands, when using voice

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<sup>1</sup> More Information here: <https://openvoicenetwork.org/post/linux-foundation-announces-open-voice-network/>

<sup>2</sup> Page 76, Preliminary report on the sector inquiry into consumer internet of things

<sup>3</sup> Page 77, Preliminary report on the sector inquiry into consumer internet of things

assistants. Such a register would also help all players but also SMEs to adapt to already existing structures more easily and use resources more efficiently.

## Data collection and privacy

Voice technology is unique when compared to other user interfaces for consumer IoT systems such as keyboards, dials, touchpads or mobile apps. Like the other interfaces, voice can be used to turn devices or systems on or off, adjust levels or volumes, or set timers. However – and unlike the other interfaces – the human voice is by itself a rich source of personal data. In fact, it is perhaps the single richest data source in digital world, and can be used to determine or infer a wide range of information about the user, some of which the user may not willingly wish to share with provider.

As such, voice as an interface to consumer IOT systems is much more than a gatekeeper. For proprietary providers, it may be a *gate-opener* for massive data acquisition, one that pushes open doors of data fields both broad and deep. When voice assistance is the user interface to consumer IoT systems and controls, it gives sponsoring platform access to not only all end points within the IoT environment, but access to all user intent and behavior data. It may also – depending upon the system architecture and controls – provide access to all data that may be generated from technologies that support and enable the end points. The marriage of proprietary voice assistance and proprietary consumer IOT systems creates the possibility of all-encompassing data dominance – where knowledge of user behaviors (not to mention their emotional, mental, and physical states) will be used to drive competitors from the ecosystem.

A literature review conducted by the Open Voice Network has identified more than 20 descriptors that can be obtained directly or inferred from voice data with varying levels of accuracy, such as:

- User intent: the desired knowledge or action
- Physical characteristics: binary gender, age range, height and weight, body mass index, upper body strength<sup>4</sup>
- Personality type<sup>5</sup>
- Demography: cultural region, educational level, social class<sup>6</sup>
- Sentiment: anger, sadness, delight, levels of confidence<sup>7</sup>
- Truthfulness<sup>8</sup>

<sup>4</sup> Gonzalez, J., "Correlations Between Speaker's Body Size and Acoustic Parameters of Voice," University Jaume 1, August 2007.

<sup>5</sup> Park, J., Lee, S., Brotherton, K., Um, D., and Park, J., "Identification of Speech Characteristics to Distinguish Human Personality of Introversive and Extroversive Male Groups," International Journal of Environmental Research and Public Health, March 23, 2020.

<sup>6</sup> Kraus, M. W., Torrez, B., Park, J. W., Ghayebi, F., "Evidence for the reproduction of social class in brief speech," Proceedings of the National Academy of Sciences of the United States of America, September 22, 2019.

<sup>7</sup> Davletcharova, A., Sugathan, S., Abraham, B., James, A. J., "Detection and Analysis of Emotion from Speech Signals," Procedia Computer Science, 2015.

<sup>8</sup> Todd, K. J., "Detecting Deception: Speech and Voice as Lie Detector," [www.forensicstrategic.com](http://www.forensicstrategic.com), July 2018.

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- Physical health: intoxication, blood glucose levels, Parkinson's, Alzheimer's, fertility, COVID-19, respiratory illness<sup>9</sup>
- Mental health: depression, bipolar disorder, schizophrenia<sup>10</sup>

To this end, the Open Voice Network is currently working on privacy guidelines which gives consumers the control over their data. These guidelines would ensure that the consumer can access information about how the personal data is used and controlled at any time.

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<sup>9</sup> Metcalf, Fisher, Pruthi, and Pappas, Voice Technology in Healthcare, Boca Raton: CRC Press, 2020. Chu, J., "Artificial intelligence model detects asymptomatic COVID-19 infections through cellphone-recorded coughs," MIT News, 29 October 2020. Laguarda, J., Hueto, F., and Subirana, B., "COVID-19 Artificial Intelligence Diagnosis Using Only Cough Recordings," IEEE Open Journal of Engineering in Medicine and Biology, September 29, 2020. Jeon, J., Palanica, A., Sarabandani, S., Lieberman, M., Fossat, Y., "Biomarker potential of real-world voice signals to predict abnormal blood glucose levels," Klick Applied Sciences, Toronto, September 20, 2020.

<sup>10</sup> De Boer, J. N., Brederoo, S.G., Voppel, A.E., Sommer, I.E.C., „Anomalies in language as a biomarker for schizophrenia," [www.co-psychiatry.com](http://www.co-psychiatry.com), May 2020. Arevian, A.C., Bone, D., Malandrakis, N., Martinez, V., Wells, K.B., Miklowitz, D., Narayanan, S., „Clinical state tracking in serious mental illness through computational analysis of speech," PloS ONE, January 15, 2020.