

SMART SPEAKER REPORT 2023

THE EXPERIENCES, ASSESSMENTS AND DESIRES
OF USERS IN GERMANY, THE UK AND THE U.S.

MAY 2023





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May 2023

Please note: Any general references to people in this report are meant
to be gender-neutral.

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Introduction: The Motivation and Intention of This Study

Smart speakers such as Amazon Alexa and Google Nest have the potential to change consumers' habits and searching and information behavior. As a result, they also have an influence on media use, the reach of advertising, and purchasing decisions. The second NIM project to study the use of smart speakers, this time in three countries, recently examined how significant this influence is and where there might also be potential for improvement and development.

The survey began in December 2022, with the study looking at three countries this time: Germany as well as the U.S. and the UK, where the technology has been available for a few years longer. More than 1,000 active users of smart speakers were surveyed in each of the countries. The objective was to get acquainted with users' experiences, assessments and desires and thus gain an understanding of the influences on their use of media and their decision-making behavior as well as development potential for smart speakers and voice assistants.

According to the findings of Statista's "Consumer Insight" study, the share of smart speaker users is currently around one-quarter of the online population between the ages of 18 and 64 in Germany and the U.S. and one-third in the UK.

(Source: Statista Consumer Insight Global, n = 36,171 respondents in Germany, January 6 to December 18, 2022; n = 24,191 respondents in the UK, January 6 to December 14, 2022; n = 59,934 respondents in the U.S., January 3 to December 16, 2022.)

Our survey thus covers only a minority of the population in the three countries, and this device may also be surpassed by a different technology before it has a chance to reach and win over the majority. But smart speakers are popular especially with younger people.

We want to offer these early adopters of voice assistants the chance to speak, so that we can understand how the new technology has already changed their consumer and purchasing behavior. After all, this is a good opportunity to go from the abstract level of the technology and concepts to the concrete level of consumer desires and expectations as well as changes in their behavior. Our findings encompass preferences and experiences as well as the opportunities and limitations of this new digital housemate, which also serves as a radio, DJ, butler, adviser and salesperson. We believe that what we have discovered is important, as it can help manufacturers, companies, politicians and even consumers themselves sensibly prepare for the future and understand the opportunities and risks associated with this technology.



Nuremberg, May 2023
Claudia Gaspar and Dr. Andreas Neus



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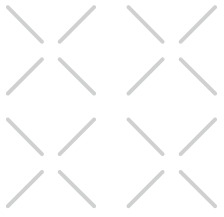
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Methods and Sample Structure

LIFE WITH SMART SPEAKERS

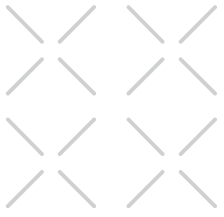




Key Findings

Life and Shopping With Smart Speakers (1/2)

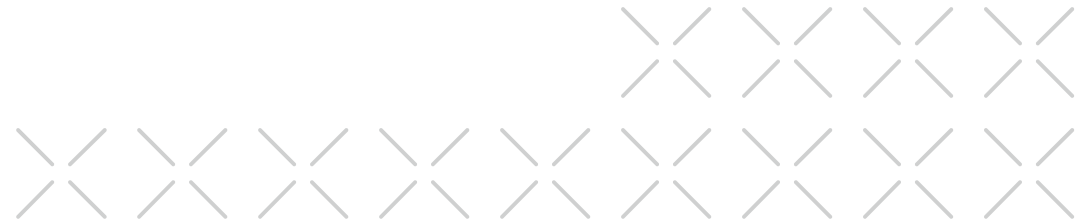
- > Many of the fundamental behaviors and experiences vary in much the same way in all three countries. But those surveyed in the U.S. were usually more euphoric, and in the UK almost always more reserved, than participants in Germany.
- > The integrated screen is an important tool for many applications – especially when it comes to ordering products. But all smart speakers (even those without a screen) could be a game changer for other media.
- > Nonetheless, there are a great many users in all three countries who see a need to improve voice commands.
- > Even if only some of the owners shop using their smart speaker, they have a great deal of trust in the voice assistant's product recommendations. In all three countries, the majority of those surveyed can imagine having their smart speaker organize many of their regular purchases in the future. The number of these users is especially high in the U.S.
- > That could have a significant impact on many purchasing habits. For example, there will be a drop in diversity, as the same products will always be purchased for the sake of convenience and simplicity, placing higher demands on brand marketing. They will either make it to the top-of-mind list of people who place orders and therefore become a key component of their shopping short list, or they'll have to battle it out for the best product placement with the new gatekeepers or the intelligent speakers' algorithms.
- > The influence of smart speakers could even continue to grow, as there's development potential to increase their appeal. For example, the assistant's voice offers an opportunity for significant improvement, as not even half of those surveyed like the tone of the standard voice and a large majority would generally prefer a selection of different voices to choose from or the voice of a celebrity or someone they know personally.



Key Findings

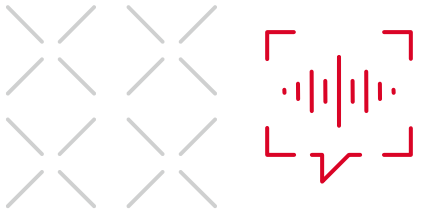
Life With Smart Speakers (2/2)

- > There's more difference in opinion for the design than for the voice. Opinions about smart speakers with a humanoid face design tend to vary in Germany and the U.S., with the design largely rejected in the UK. But moving eyes that look at you are more frequently viewed as creepy than human faces without expressions in all three countries. When it comes to the maneuverability of smart speakers, wheels are preferred over limbs. Limbs are viewed as creepy twice as often as wheels. But even if it's not the majority view, around half of those surveyed in the U.S. and Germany and about one-third in the UK consider smart speakers with a face, moving eyes and/or maneuverability to be very appealing and even wonderful. The variants with wheels are the most popular in all three countries (more than 50% in the U.S. and Germany and a good 40% in the UK).
- > The majority do not view the aspects of data protection addressed in the survey as a problem. Around 40% in the UK and the U.S. and 35% in Germany worry that the smart speaker will record their conversation even without activation. Most (nearly 80% in Germany and more than 70% in the UK and the U.S.) share this belief, but many of them don't consider it a concern. The results are similar for the storage of conversations and data by the provider. But these results need to be interpreted with caution, as we surveyed active smart speaker owners who are potentially less concerned than the average person. That's why it's important to clarify the following question in the future: How many people would like to purchase a smart speaker, but ultimately refrain from doing so simply due to concerns about data protection?



ASSESSMENTS OF VOICE ASSISTANTS

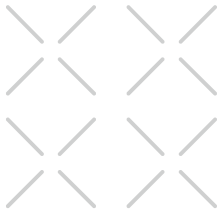




Key Findings

Assessments of Voice Assistants (1/2)

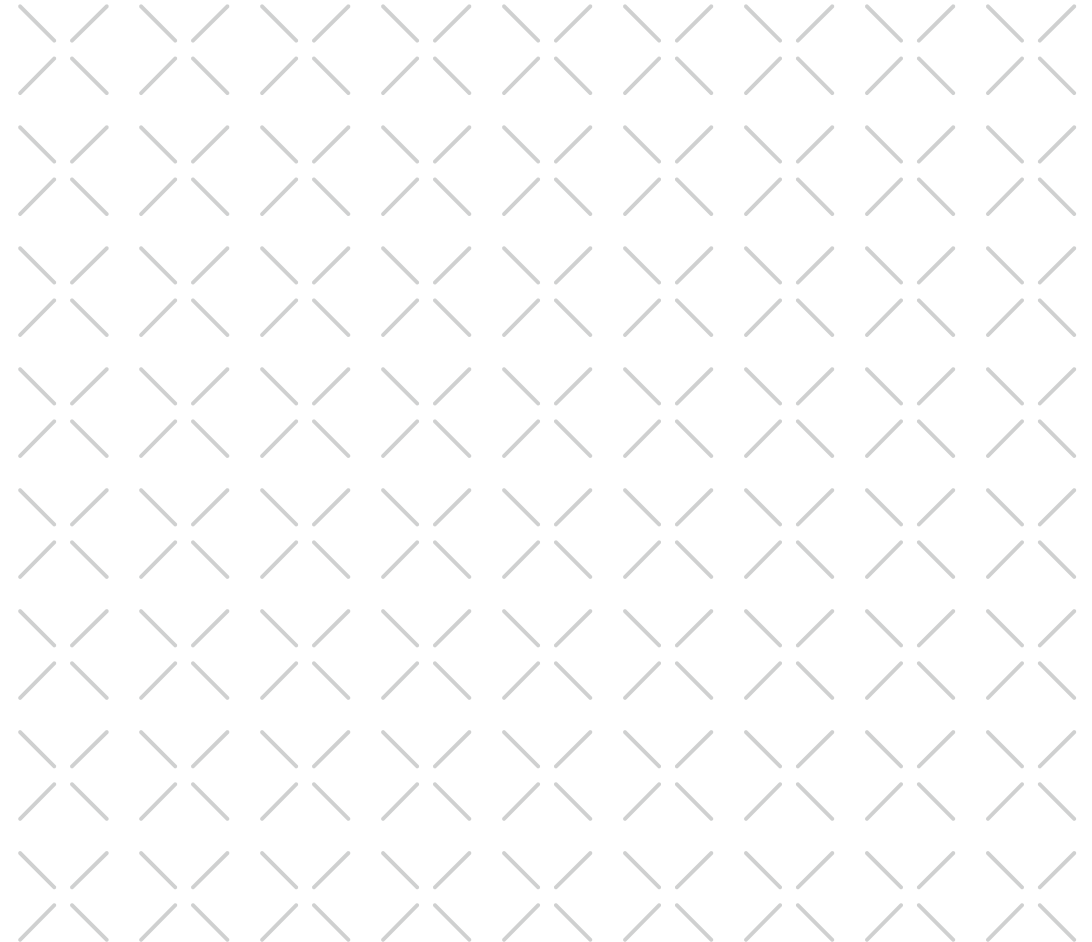
- > Regardless of whether they're a stationary (or one day possibly even a walking) smart speaker at home or a feature on other devices, voice assistants offer a whole lot of potential that has yet to be exploited. Or at least that's the way the surveyed smart speaker owners see it.
- > There's a great deal of interest in a wide range of services in all three countries. Restaurant recommendations and food orders with delivery services (each around 70%) enjoy the highest appeal. It's difficult to predict what sort of influence these intelligent assistants could have on the selection of providers in the future. But there will certainly be an impact, and one that's negative for those who fail to adapt to these gatekeepers in time. Many of those surveyed also like the idea of appointment scheduling, shopping advice and short lists for service providers. And there's even a solid base of users interested in the relatively sensitive services associated with health and finances, even if it is much smaller than for the most popular services.
- > Future visions and desires are easy to express, but achieving social acceptance in reality is much more difficult. In an effort to better categorize the opportunities provided by future integration of voice assistants into an overarching social context, we asked survey participants to assess four future scenarios with voice assistants in a type of Overton window. The results: People will place a great deal of trust in intelligent voice assistants in the near future. In all three countries, 40% to 60% consider all of the future scenarios developed by NIM for the survey to be realistic, with those in the U.S. always the most optimistic and those in the UK the most hesitant. Those surveyed in all three countries assigned the highest probability to the prediction that shopping via voice assistant will be completely normal in five years. The (comparatively) most skeptical responses come when evaluating whether voice assistant consultants could become more trustworthy than their human counterparts.



Key Findings

Assessments of Voice Assistants (2/2)

- > The utopias and dreams expressed by those surveyed present ideas for applications that go far beyond pragmatic coaching and hint at the vast potential of voice technology. In response to open-ended questions about their desires for future developments in the field of voice assistants, survey participants expressed practical desires (completion of household chores and other tedious tasks) and occasionally some very radical thoughts on an emotional, psychological level. These center around friendships, self-optimization, coaching and even therapeutic support.



1

BASIC DATA ON EQUIPMENT AND APPLICATIONS

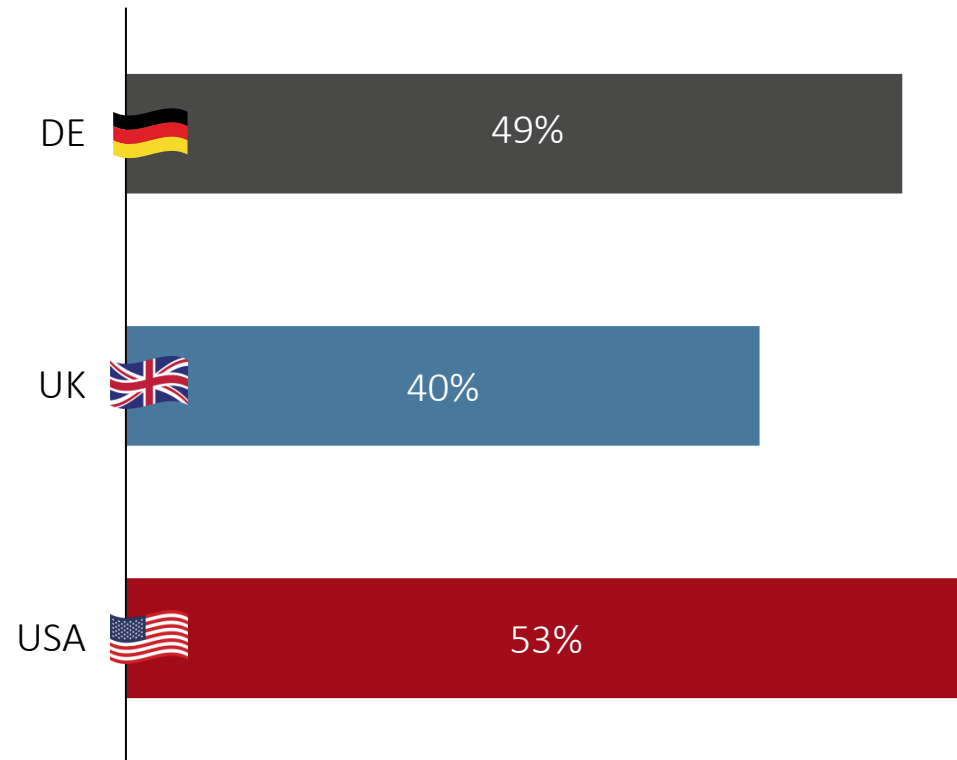
Smart Speaker Equipment and Applications

- > Equipment, frequency of use, and applications are similar among those surveyed in all three countries, but are not identical. Those surveyed in the U.S. are somewhat better equipped and more active than participants in Germany, while the answers in the UK tend to be more reserved.
- > Around half of those surveyed in Germany and the U.S. use a smart speaker with screen. It's about 10% less in the UK. Amazon's Alexa is the no. 1 brand in all three countries. As the second strongest provider, Google is popular especially in the U.S. When it comes to devices with integrated screen alone, Google performs somewhat better than Amazon in our sample.
- > Intensity of use is high: **More than 70% of those surveyed in all three countries use their smart speaker at least once a day.**
- > Most of those surveyed enjoy simple audio applications such as listening to music, weather reports, news and sports results, asking questions and simply having fun. As their role as gatekeeper expands, intelligent speakers could represent serious competition for other media such as traditional radio.
- > Not all smart speakers are alike. **Devices with an integrated screen are used in a wider range of applications.** In other words, the screen is an important tool for boosting some applications – the uplift is particularly clear when it comes to ordering products. The overwhelming majority tend to use typical audio applications for music and information with or without screen.

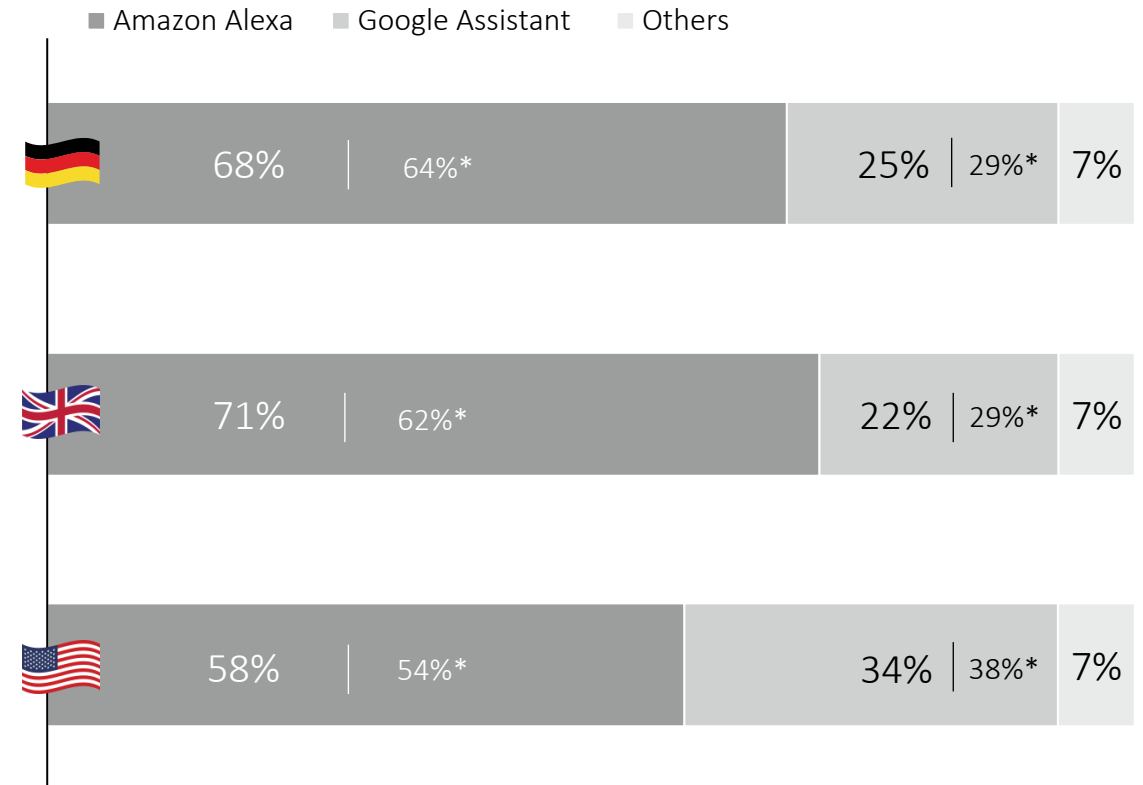


Around half of those surveyed in Germany and the U.S. use a smart speaker with screen. Amazon's Alexa is no. 1 – in all three countries.

Percentage of owners of a smart speaker with screen



The only or most frequently used smart speaker brand

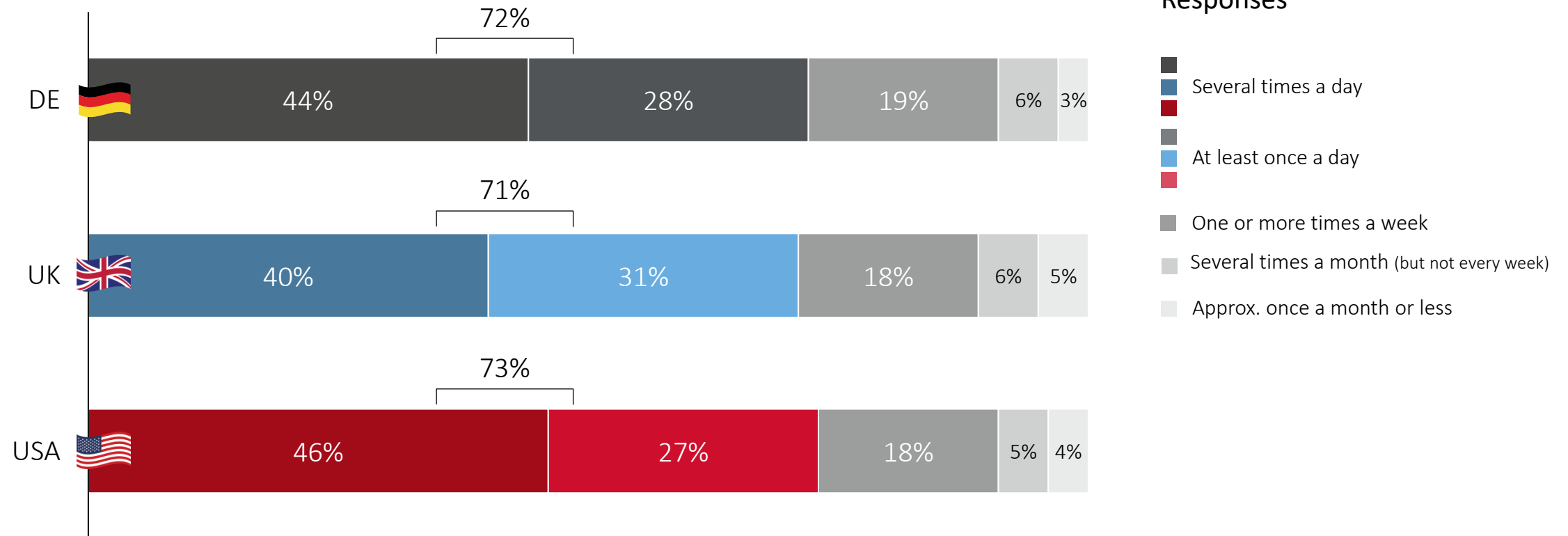


Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* With screen

1 Intensity of use is high: More than 70% of those surveyed use their smart speaker at least once a day













How often is the smart speaker + voice assistant used?



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

The integrated screen is an important tool for boosting many applications

What do you have your smart speaker + voice assistant do?

Responses Top two boxes out of four (frequently + occasionally)	Total			With screen			Without screen			Balance in percentage points*		
												
Order/purchase products	44%	34%	48%	59%	50%	59%	29%	24%	35%	30	26	24
Recommend products/providers	46%	37%	55%	60%	51%	66%	32%	27%	43%	29	24	22
Inform me of product prices	53%	41%	59%	63%	55%	68%	44%	32%	49%	19	22	19
Entertain/engage children	53%	51%	60%	63%	63%	66%	43%	44%	53%	20	19	14
Provide traffic information about my route(s)	54%	51%	59%	65%	62%	69%	44%	43%	49%	20	19	20
Inform me about shops, pharmacies, restaurants, etc. (opening hours, closest shop)	54%	48%	63%	60%	60%	70%	49%	40%	54%	12	20	16
Create a shopping list	54%	40%	55%	68%	54%	62%	41%	31%	47%	27	23	15
Create a to-do list	54%	42%	58%	61%	55%	65%	47%	33%	50%	13	22	15













 DE  UK  USA

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Any deviations in balances of individual values are the result of rounding.

Typical audio applications are intensively used even without integrated screen

What do you have your smart speaker + voice assistant do?

Responses Top two boxes out of four (frequently + occasionally)	Total			With screen			Without screen			Balance in percentage points*		
												
Games, ask quiz questions	57%	57%	63%	66%	63%	67%	48%	52%	59%	18	11	8
Control lights/household appliances/heating	58%	44%	58%	66%	59%	67%	50%	34%	48%	16	25	19
Help with cooking/baking	61%	53%	62%	66%	61%	69%	55%	47%	53%	11	13	16
Remind me of appointments	66%	52%	69%	73%	62%	74%	60%	45%	62%	13	17	12
Amuse/entertain me	70%	70%	78%	73%	73%	77%	66%	68%	79%	7	4	-2
Read out weather reports/news/sports results	76%	74%	79%	76%	77%	80%	76%	72%	78%	0	5	2
Answer questions	72%	77%	82%	75%	76%	82%	70%	77%	81%	5	-1	0
Play music	83%	84%	85%	82%	81%	83%	84%	86%	88%	-2	-5	-5

 DE  UK  USA

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

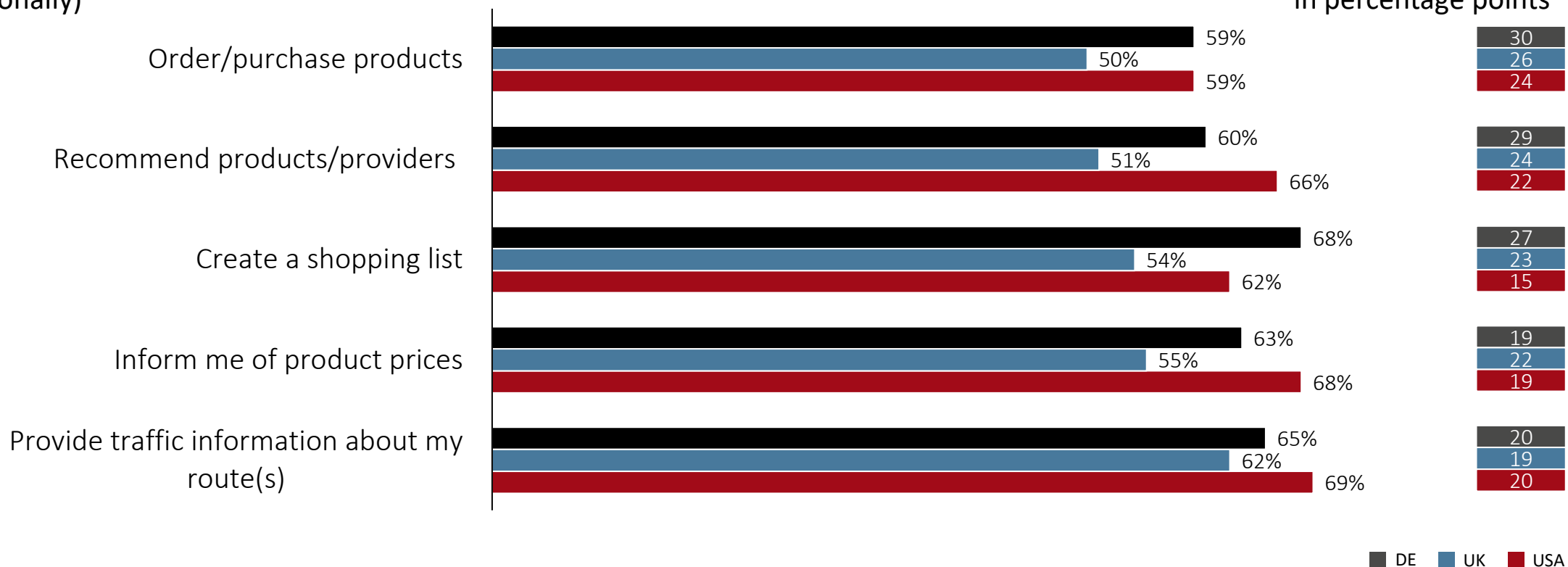
* Any deviations in balances of individual values are the result of rounding.

The integrated screen is an important tool for applications associated with ordering products – here the uplift is at its highest

What do you have your smart speaker + voice assistant do? Subgroup: with screen

Responses: top two boxes out of four (frequently + occasionally)

Uplift factor in percentage points*



Basis: n = 545, 442 and 584 people per country who use (at least one) smart speaker with integrated screen in the household

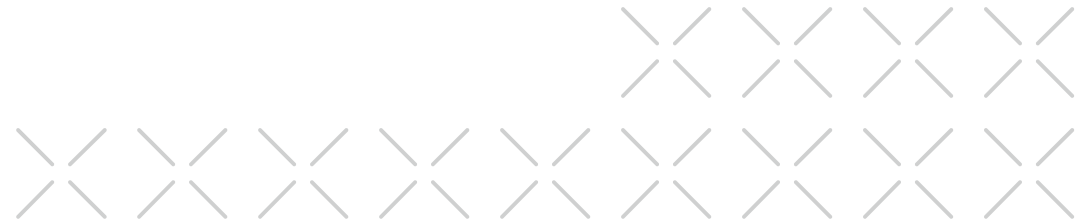
* In comparison with the subgroup without screen

2

HOW DO PEOPLE FEEL ABOUT SMART SPEAKERS?

How Do People Feel About Smart Speakers?

- > **Enthusiasm and criticism vary** in much the same way in all three countries.
- > **Despite a high inclination to recommend a smart speaker, a great many users in all three countries still see a need to improve voice commands.** The screen increases the share of critics, most likely due to the fact that screens expand application variety and complexity, ultimately revealing more weaknesses. Older users tend to have a more positive view of their smart speakers and are less critical than younger ones.
- > **Everyday media use is changing, with other devices and channels losing their relevance for most smart speaker users.** Those surveyed in the U.S. are again more radical, and in the UK more reserved, than participants in Germany. And here too, screens have a boosting effect. But generally speaking, intelligent speakers are game changers for other media.
- > New suggestions and ideas for smart speakers also frequently fall on fertile ground. And this effect is more pronounced for devices with an integrated screen than it is for devices without visual support.

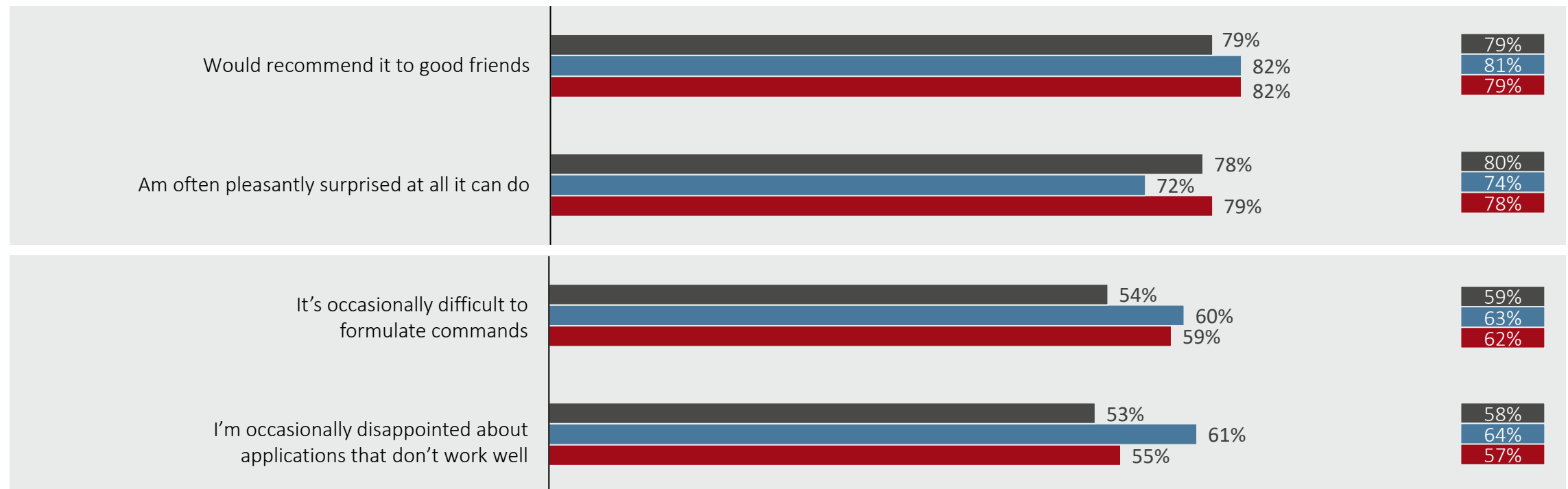


2 Despite a high inclination to recommend a smart speaker, a great many users in all three countries still see a need to improve voice commands

Personal attitudes toward and experiences with the smart speaker + voice assistant

Predefined statements:
top two boxes (partly agree + completely agree)

Subgroup:
with screen



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

■ DE ■ UK ■ USA

Older users tend to have a more positive view and are less critical

Personal attitudes toward and experiences with the smart speaker + voice assistant

Predefined statements:
top two boxes (partly agree + completely agree)



I would recommend it to good friends.

I'm often pleasantly surprised at all it can do.



It's sometimes difficult to formulate commands correctly.

I'm occasionally disappointed about applications that don't work well.

	Total			18–29 years			30–39 years			40–54 years			55+ years		
I would recommend it to good friends.	79%	82%	82%	75%	81%	77%	78%	80%	84%	82%	82%	84%	85%	84%	86%
I'm often pleasantly surprised at all it can do.	78%	72%	79%	76%	70%	70%	77%	70%	82%	81%	75%	82%	81%	76%	86%
It's sometimes difficult to formulate commands correctly.	54%	60%	59%	56%	60%	56%	52%	62%	63%	54%	62%	59%	48%	55%	54%
I'm occasionally disappointed about applications that don't work well.	53%	61%	55%	56%	63%	54%	57%	65%	57%	49%	57%	59%	45%	59%	47%

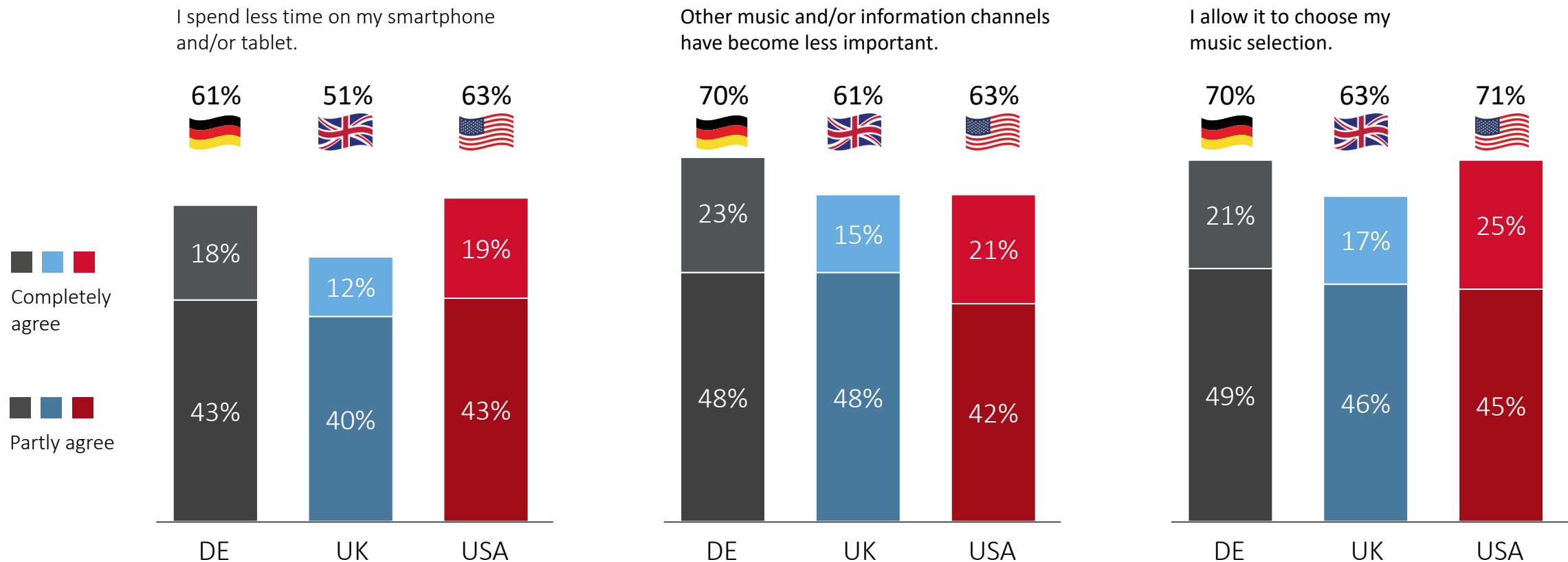
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

DE UK USA

Everyday media use is changing, with other devices and channels losing their relevance for most smart speaker users

What have smart speakers changed in users' everyday lives?

Responses: assessment on a three-stage scale



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

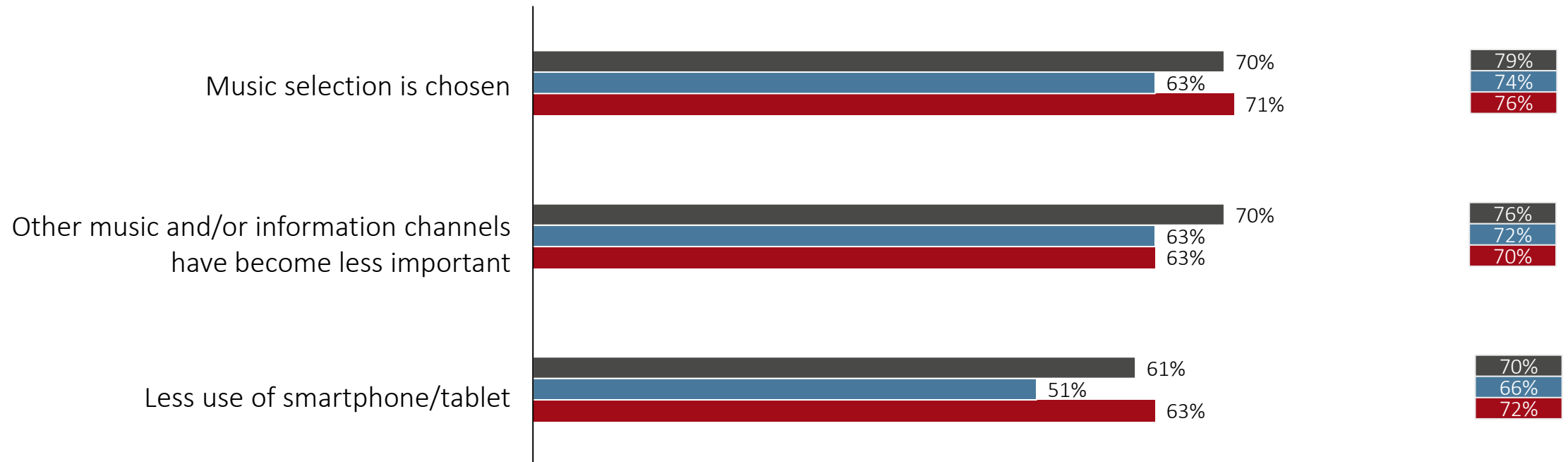
There may be deviations between sums and individual values due to rounding.

Screens have a boosting effect, which also applies to the diminishing relevance of other devices

How has the use of smart speakers changed everyday life?

Predefined statements:
top two of the three-stage scale (completely agree, partly agree)

Subgroup:
with screen



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

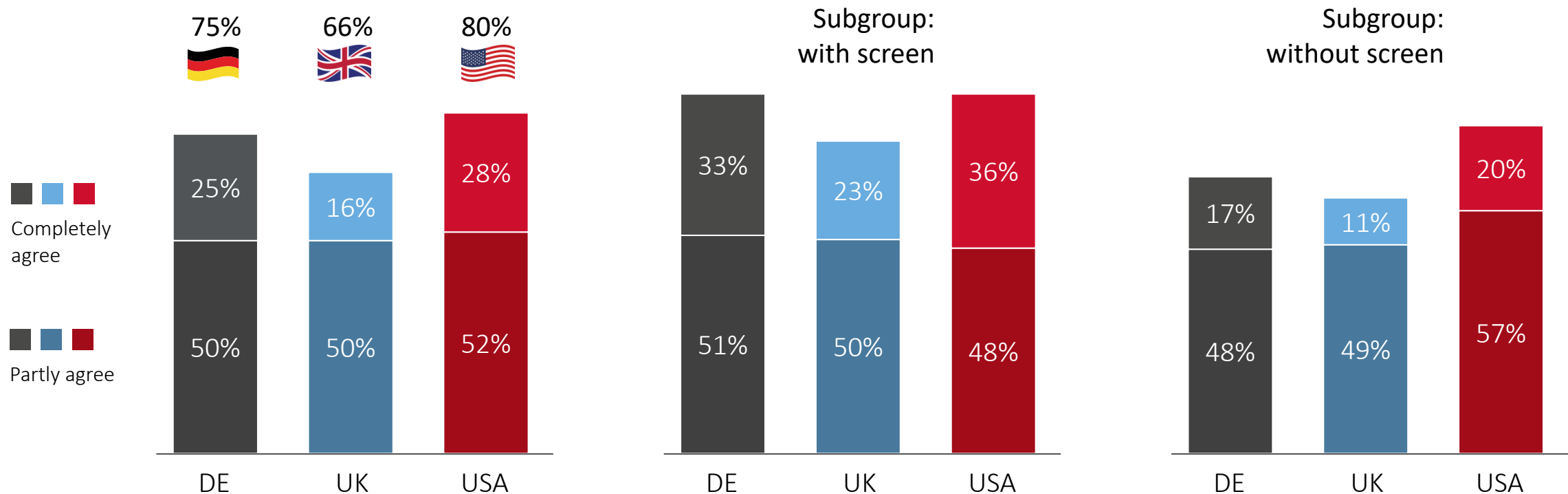
■ DE ■ UK ■ USA

New suggestions and ideas for smart speakers frequently fall on fertile ground; this effect is especially pronounced for devices with a screen

What have smart speakers changed in users' everyday lives?

Responses

Its suggestions often lead to new ideas and spontaneously inspire me to take action.



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

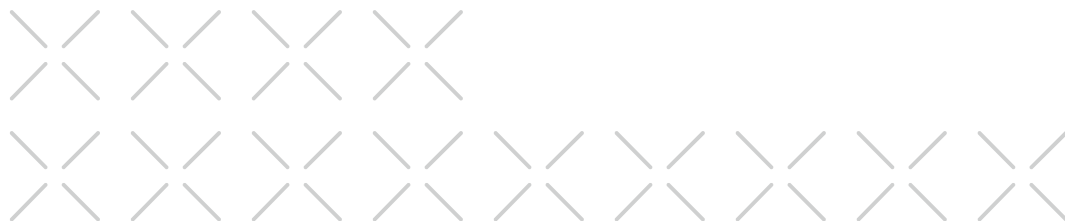
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3

EXPERIENCES WITH SHOPPING VIA SMART SPEAKER

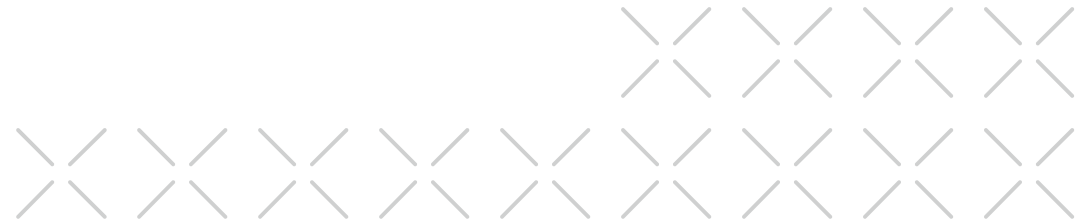
3 Experiences With Shopping Via Smart Speaker (1/2)

- > **Smart speakers have the potential to change shopping.** Fewer than half of the smart speaker users surveyed currently order products using their intelligent speaker – in the UK, it's just one-third. But that percentage is higher than average for younger people and households with one or more children. Nonetheless, **those who place orders using their smart speaker have thus invited a new and not necessarily neutral actor into the decision-making process.**
- > **Many people frequently face obstacles** when shopping via smart speaker, and still the basic assessment is positive for most of them.
- > **Many in the group of buyers rely on a consistent routine and a preselection of familiar products and brands**, which likely reduces diversity in the brands and products used.
- > **People in this group (those who currently make purchases using the device) have a great deal of trust in the smart speaker's preselection of products.** The voice assistants are therefore already a gatekeeper in the target group – at least for certain products.
- > **Two concrete examples (certain staple foods, earphones) illustrate the high willingness to delegate:** Around half of those surveyed allow their smart speaker to make suggestions for simple products in both food and nonfood sectors or make a preselection. That share has already increased to two-thirds among smart speaker users who already shop using the speaker. In other words, the majority of those surveyed are open to comprehensive shopping support – and therefore also a certain degree of decision control – provided by the intelligent device.



Experiences With Shopping Via Smart Speaker (2/2)

- > In all three countries, the majority of those surveyed can imagine having their smart speaker organize many of their regular purchases in the future. The number of these users is especially high in the U.S. In combination with the previous findings, this could have a significant impact on many purchasing habits. For example, there will be a drop in diversity, as the same products will always be purchased for the sake of convenience and simplicity, placing higher demands on brand marketing. They will either make it to the top-of-mind list of people who place orders and therefore become a key component of their shopping short list, or they'll have to battle it out for the best product placement with the new gatekeepers or the intelligent speakers' algorithms.
- > As mentioned before, many product buyers believe there is still a concrete need to improve the purchasing process via smart speaker despite their obviously positive attitude. There are no primary, dominating problems, but rather a multifaceted agenda of concerns, restrictions and requirements.
- > For those who have never placed an order/shopped using their smart speaker (33% in Germany, 50% in the UK and 35% in the U.S.), there are three primary reasons. Two of these are conscious decisions: **Product buyers prefer to search and shop online the usual way via computer, laptop, etc., or they're worried about ordering the wrong thing.** The third group simply doesn't have any experience with it (yet).

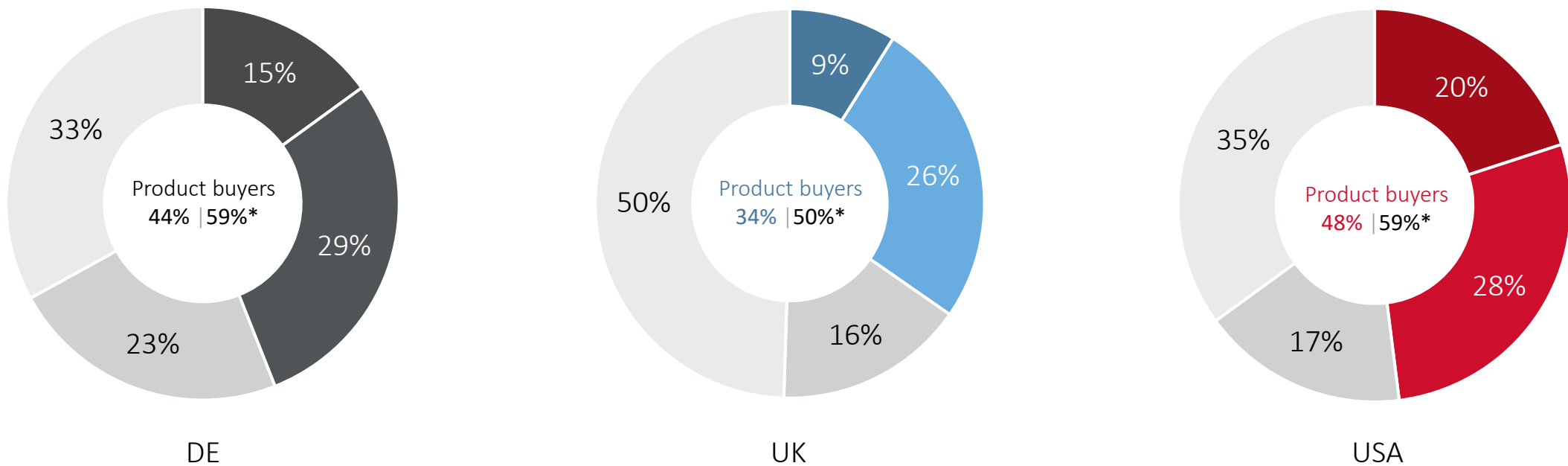


3

Not even half of the smart speaker users surveyed order products using their intelligent speaker – in the UK, it's just one-third

... % of all the smart speaker users surveyed have frequently ordered products using the speaker

Responses



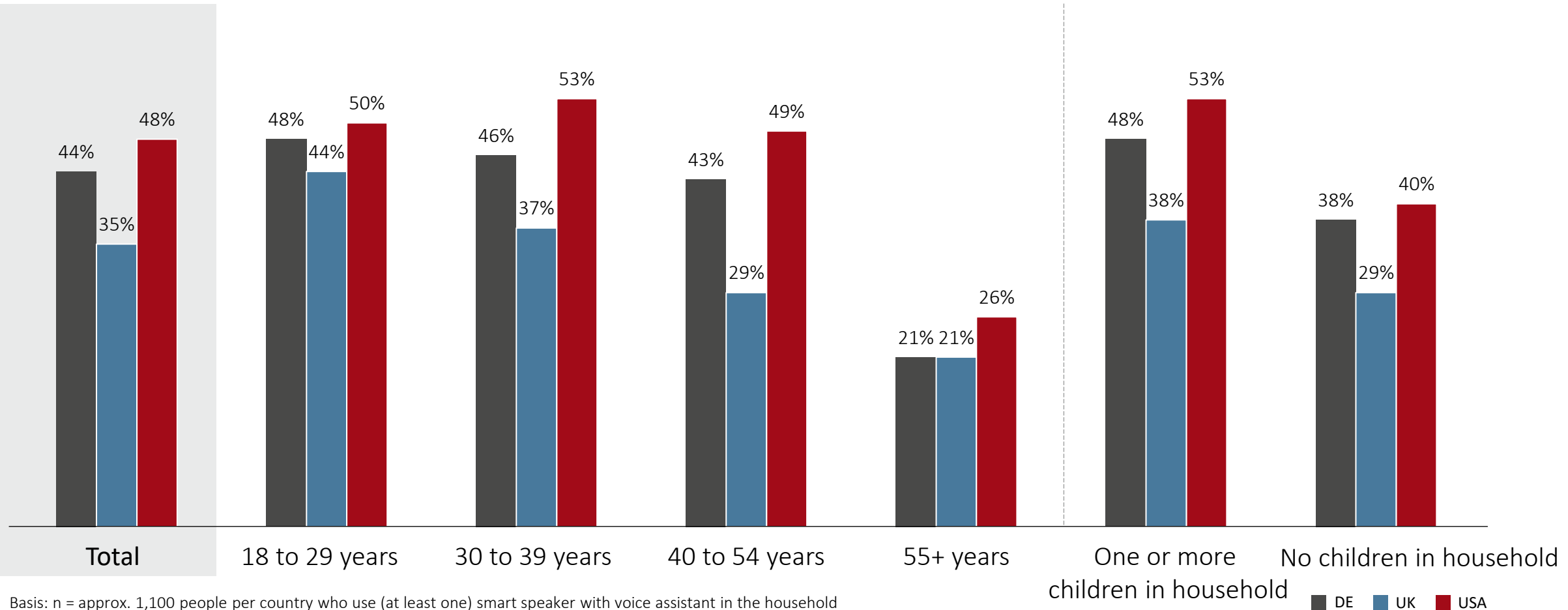
■ ■ ■ ■ Frequently ■ ■ ■ ■ Occasionally ■ Only tried once ■ Never

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Subgroup with screen
Any deviations between sums and individual values are the result of rounding.

The percentage of product buyers is higher than average for younger people and households with one or more children

Percentage of product buyers (frequently, occasionally) in different sociodemographic groups



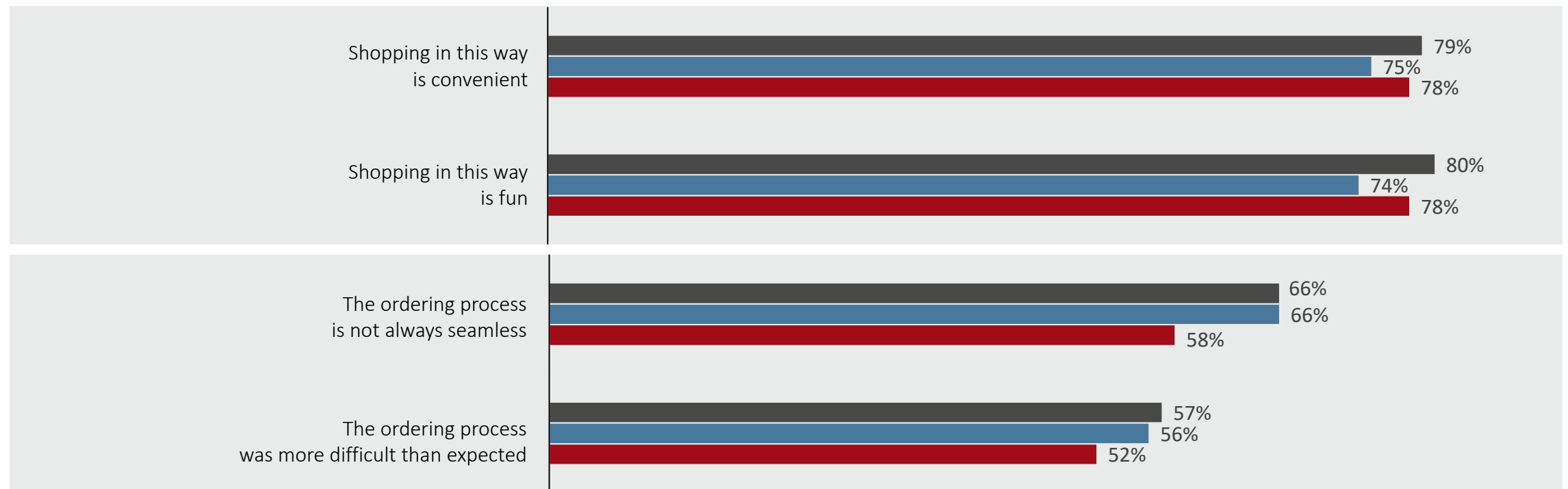
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

Many people frequently face obstacles when shopping via smart speaker, and still the assessment is positive for most of them

How are shopping experiences rated? | Subgroup: shops frequently or occasionally

Responses:

top two boxes out of four (completely agree + partly agree)



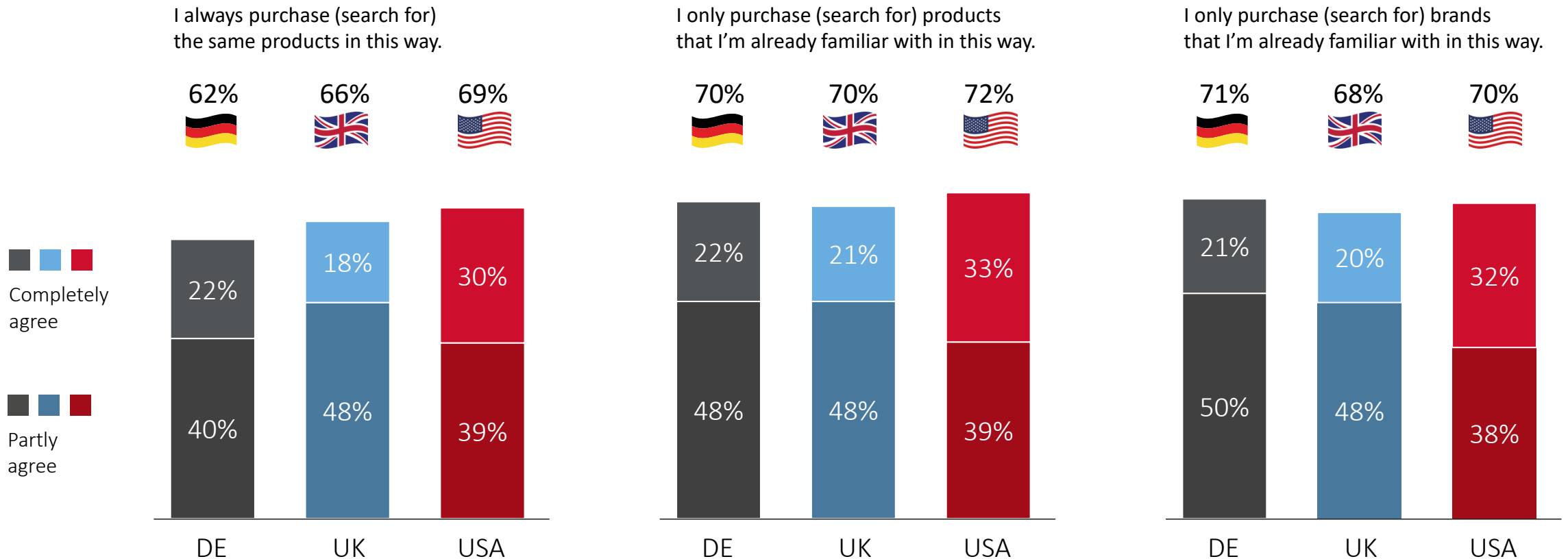
■ DE ■ UK ■ USA

Basis: n = 490, 382 and 526 people per country who use (at least one) smart speaker with voice assistant in the household and shop with it frequently or occasionally

The end of diversity? When it comes to shopping, many rely on a consistent routine and a preselection of familiar products and brands

How are shopping experiences rated? | Subgroup: shops frequently or occasionally

Responses



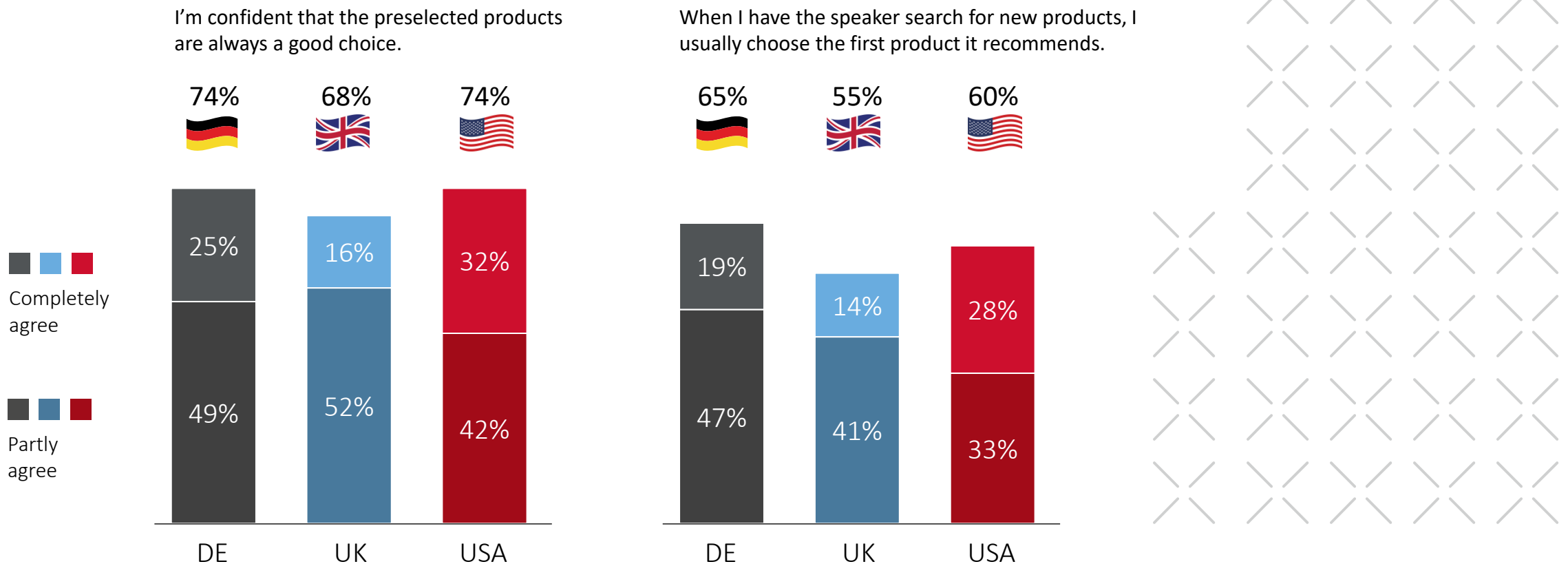
Basis: n = 490, 382 and 526 people per country who use (at least one) smart speaker with voice assistant in the household and shop with it frequently or occasionally

There may be deviations between sums and individual values due to rounding.

When shopping, people have a great deal of trust in the smart speaker's preselection of products. Are there new gatekeepers on the horizon?

How are shopping experiences rated? | Subgroup: shops frequently or occasionally

Responses



Basis: n = 490, 382 and 526 people per country who use (at least one) smart speaker with voice assistant in the household and shop with it frequently or occasionally

There may be deviations between sums and individual values due to rounding.

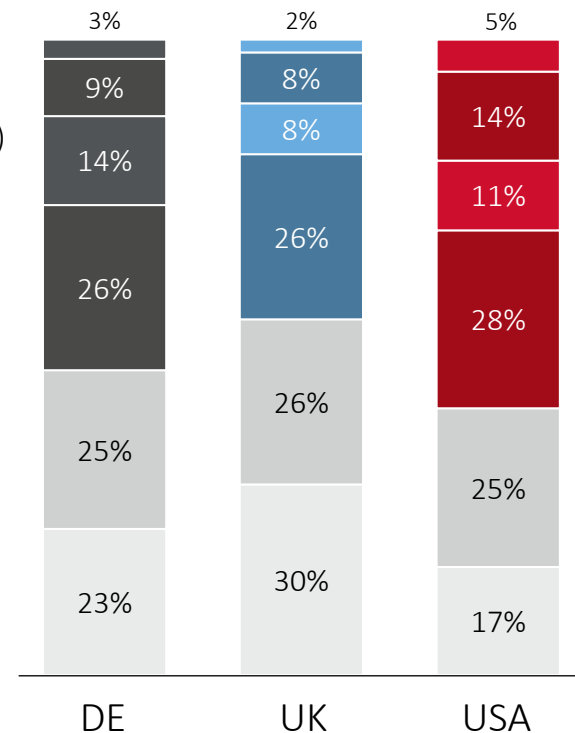
Shopping delegation in concrete terms: Around half of those surveyed allow their smart speaker to make suggestions or a preselection for simple products

Imagine there's something you'd like to purchase, and your voice assistant can help you shop. How do you proceed? From the six options below, please choose the option that is most likely for you personally.

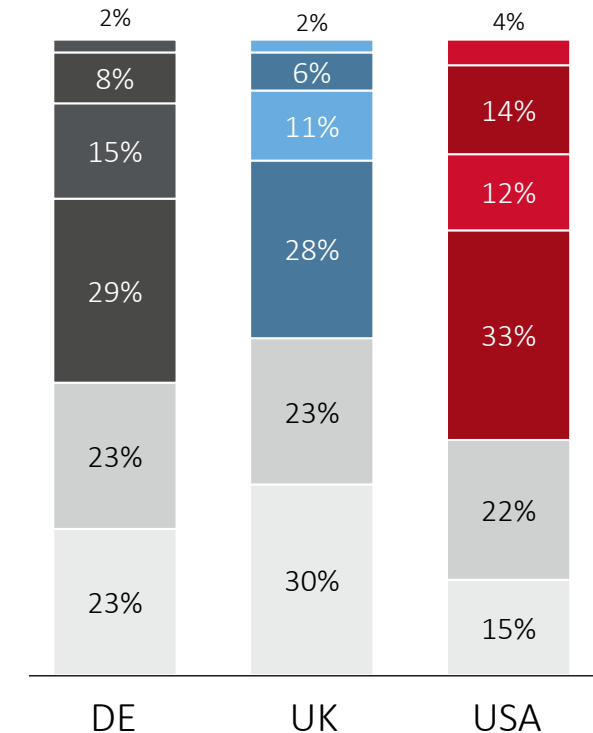
Responses

- I simply have it place the order entirely on its own.
- I define conditions (e.g., maximum price, certain brands) and then have it select and order a product accordingly.
- I have it generate and display a list of recommendations and then order one of the products it has recommended.
- I define conditions (see above), allow it to decide which products to recommend to me, and then order one of the recommended products myself.
- I only allow it to order what I have selected in advance.
- I don't accept any help.

Staple foods (sugar, flour, rice)



Earphones









Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

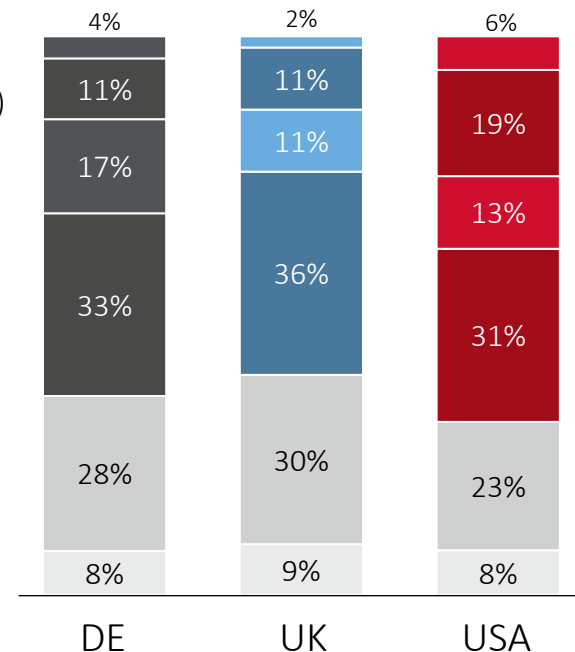
Smart speaker users who already shop with the speaker are especially open to comprehensive shopping assistance via device

Please imagine that you'd like to purchase sugar, flour and rice. From the six options below, please choose the option that is most likely for you personally. | Comparison of two subgroups

Responses

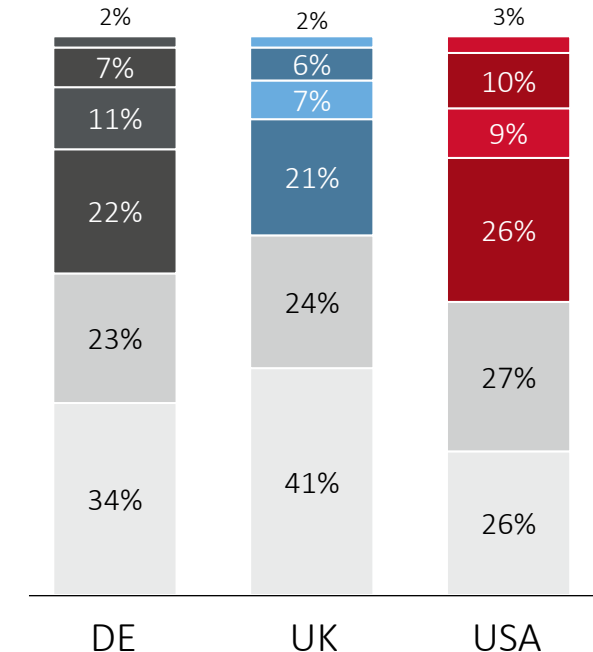
-  I simply have it place the order entirely on its own.
-  I define conditions (e.g., maximum price, certain brands) and then have it select and order a product accordingly.
-  I have it generate and display a list of recommendations and then order one of the products it has recommended.
-  I define conditions (see above), allow it to decide which products to recommend to me, and then order one of the recommended products myself.
-  I only allow it to order what I have selected in advance.
-  I don't accept any help.

Subgroup: currently product buyers (frequently, occasionally)



Basis: n = 490, 382 and 526 people per country who use (at least one) smart speaker with voice assistant in the household and shop with it frequently or occasionally

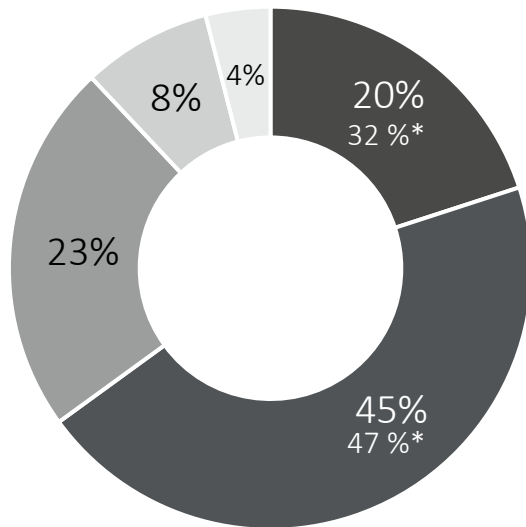
Subgroup: currently not product buyers (just tried once, never)



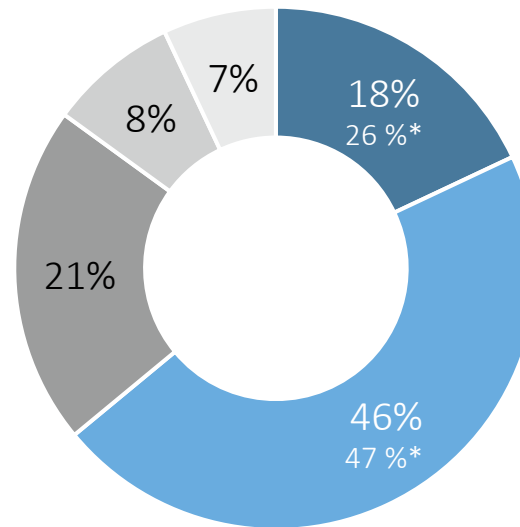
Basis: n = 631, 726 and 570 people per country who use (at least one) smart speaker with voice assistant in the household and do not shop with it or have tried it just once

The majority of those surveyed in all three countries can imagine delegating many regular purchases entirely to their smart speaker in the future

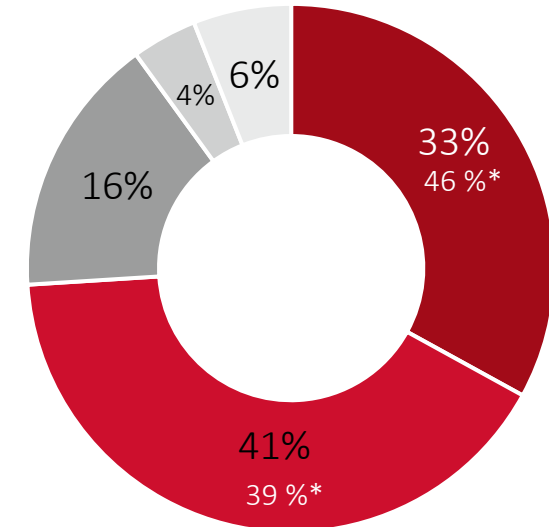
Can you imagine having a smart speaker with voice assistant fully organize many of your regular purchases/orders five years down the line?



DE



UK



USA




■ ■ Yes, definitely
 ■ ■ ■ Yes, probably
 ■ No, probably not
 ■ No, definitely not
 ■ I don't know

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Experienced product buyers (products ordered frequently, occasionally)

When it comes to ordering products via smart speaker, there's extensive need for improvement, with priorities differing slightly depending on the country

Subgroup: shops frequently or occasionally via smart speaker | Responses:




	59% 	71% 	78% 
It should be possible to remove items from the shopping cart by voice.	24%	28%	31%
There should be more detailed information about the individual products.	26%	27%	30%
It should have a better understanding of the products I'm looking for.	27%	25%	30%
I'm not confident that the recommended product offers the best value for money.	29%	27%	24%
It should ask if I consent to the storage of my purchasing data and search information.	23%	25%	30%
The number of product recommendations should be higher.	25%	24%	28%
The selection of recommended products should be better structured.	26%	23%	28%
I miss the reviews of other buyers.	22%	28%	28%
There should be more retailers available to choose from.	25%	22%	28%
The process of navigating and/or searching by voice needs to be simpler.	19%	23%	24%
The products recommended are (often) unsuitable.	20%	16%	21%

Basis: n = 490, 382 and 526 people per country who use (at least one) smart speaker with voice assistant in the household and shop with it frequently or occasionally

 DE  UK  USA

The three primary reasons users do not order products via their smart speaker are the same in all three countries

Subgroup: never shops via smart speaker | Responses:

	33% 	50% 	35% 
I prefer traditional searching and shopping online via computer, laptop, etc.	35%	39%	32%
I worry about ordering the wrong thing by mistake.	32%	31%	30%
I don't have any experience with it yet.	28%	21%	22%
I worry that the payment process is not secure.	15%	17%	19%
I find it difficult to shop (navigate/search) by voice.	18%	13%	18%
It's too complicated for me.	16%	14%	14%
I'm worried that my data will be misused.	14%	13%	17%
I enjoy shopping at physical stores more.	18%	12%	12%
I miss the reviews of other buyers.	13%	14%	16%
I don't believe that the recommended product offers the best value for money.	20%	11%	10%
The voice assistant did/does not understand well enough what I want to order.	9%	10%	11%
There was/is a lack of detailed information about the individual products.	10%	7%	9%
I don't want the provider/manufacturer to store my selection.	8%	8%	10%
I don't like that there are too few retailers available to choose from.	6%	5%	5%
The number of product recommendations is too low for me.	5%	3%	7%
The products recommended were/are usually unsuitable.	5%	2%	2%
Other reasons.	2%	2%	3%

Basis: n = 375, 550 and 383 people per country who use (at least one) smart speaker with voice assistant in the household and have never shopped with it

 DE  UK  USA

4

DEVELOPMENT OPPORTUNITIES IN VOICE AND DESIGN

Insights in Bullet Points

Voice and Design Preferences

- > There's plenty of potential for improvement in terms of the **assistant's voice**. Not even half of those surveyed like the tone of the standard voice. At just a third, it's very few in Germany. Younger smart speaker users are less satisfied than older ones in all three countries.
- > In all three countries, at least seven out of ten survey participants would also like to be able to choose other voices. Most of them would like a large selection of different voices. When it comes to the specific voices desired, a celebrity voice is at the top of the wish list with a slight lead, followed by a self-configured voice. The wish list in the U.S. is the longest.
- > Opinions about smart speakers with a humanoid face design tend to vary in Germany and the U.S., while the idea is largely rejected in the UK. But moving eyes that look at you are more frequently viewed as creepy than human faces without expressions in all three countries.
- > When it comes to the maneuverability of smart speakers, wheels are preferred over limbs. Limbs are viewed as creepy twice as often as wheels. In concrete terms, it's 40% in the UK and nearly 30% in Germany and the U.S.
- > But even if it's not the majority, around half of those surveyed in the U.S. and Germany and about one-third in the UK consider smart speakers with a face, moving eyes and/or maneuverability to be very appealing and even wonderful. The variants with wheels are the most popular in all three countries (more than 50% in the U.S. and Germany and a good 40% in the UK).

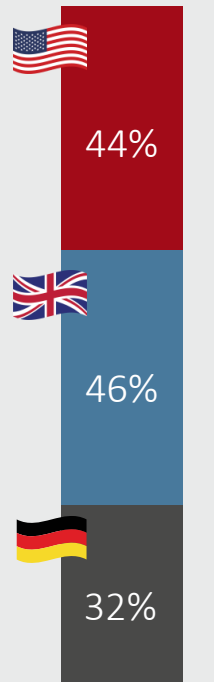


4

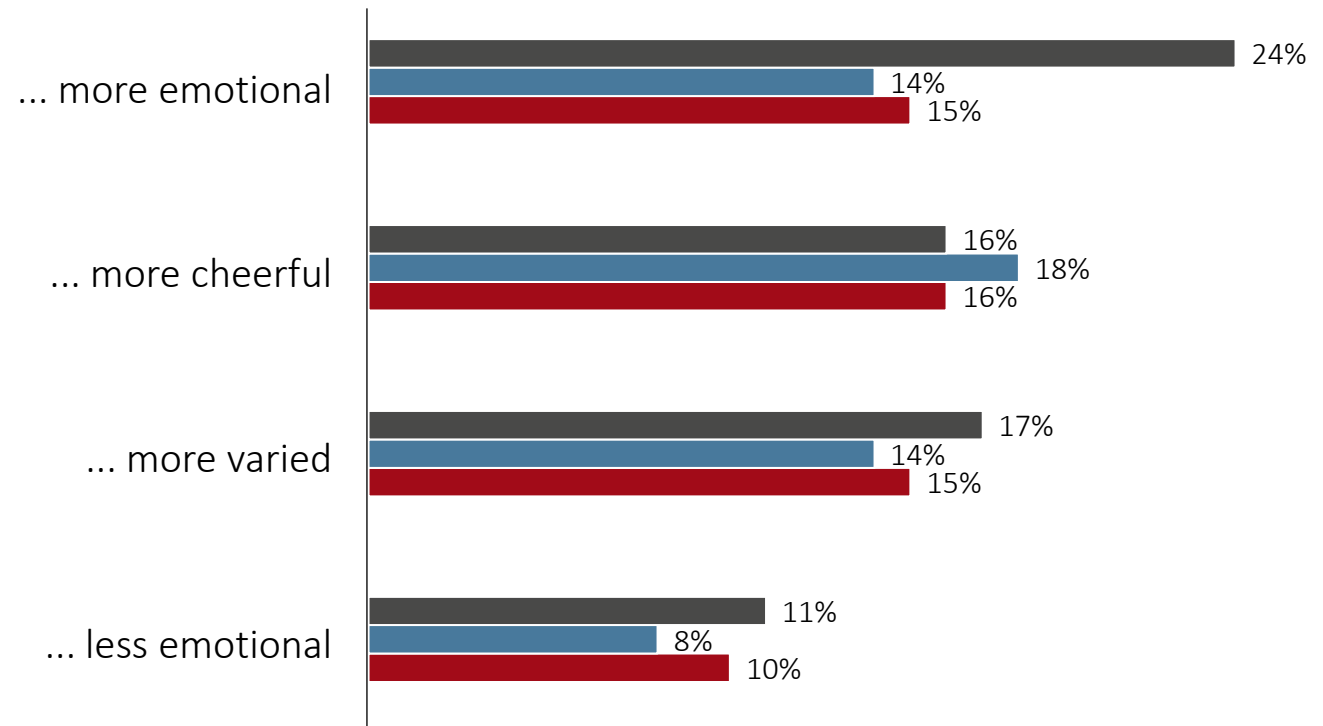
Not even half of users are satisfied with the tone of their smart speaker's standard voice

Would you like to be able to change the voice of your assistant?

The voice is fine as it is.



I would like the voice to be ...



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

■ DE ■ UK ■ USA

Dissatisfaction with the smart speaker's standard voice is noticeably higher among younger users than older ones in all three countries

Assessment of the smart speaker's voice

Responses

Age groups in years

I'm fine with the smart speaker's voice as it is.

I would like the voice to be ...




... more emotional

... more cheerful

... more varied

... less emotional



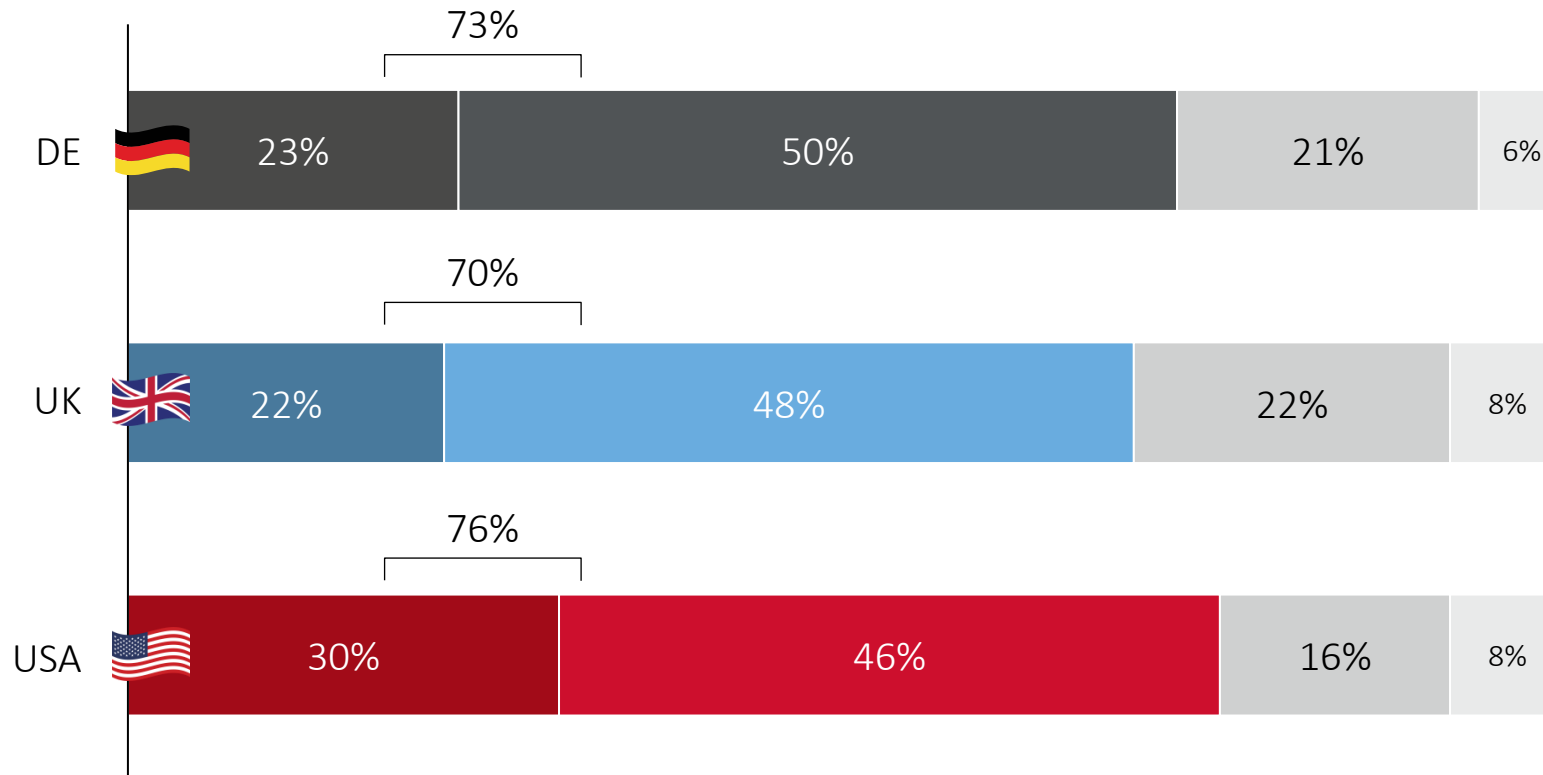
												
	18-29	30-39	40-54	55+	18-29	30-39	40-54	55+	18-29	30-39	40-54	55+
I'm fine with the smart speaker's voice as it is.	26%	26%	37%	59%	37%	41%	47%	70%	41%	35%	45%	63%
I would like the voice to be ...												
... more emotional	25%	28%	22%	13%	19%	16%	12%	4%	16%	17%	13%	7%
... more cheerful	16%	18%	15%	9%	22%	20%	15%	11%	19%	16%	15%	11%
... more varied	16%	19%	18%	11%	11%	15%	16%	12%	10%	18%	19%	14%
... less emotional	16%	9%	8%	8%	11%	7%	8%	2%	12%	12%	8%	5%

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA

In all three countries, the majority of those surveyed would like the option to select a different or multiple voices

Would you like to be able to choose a different voice for your smart speaker + voice assistant?



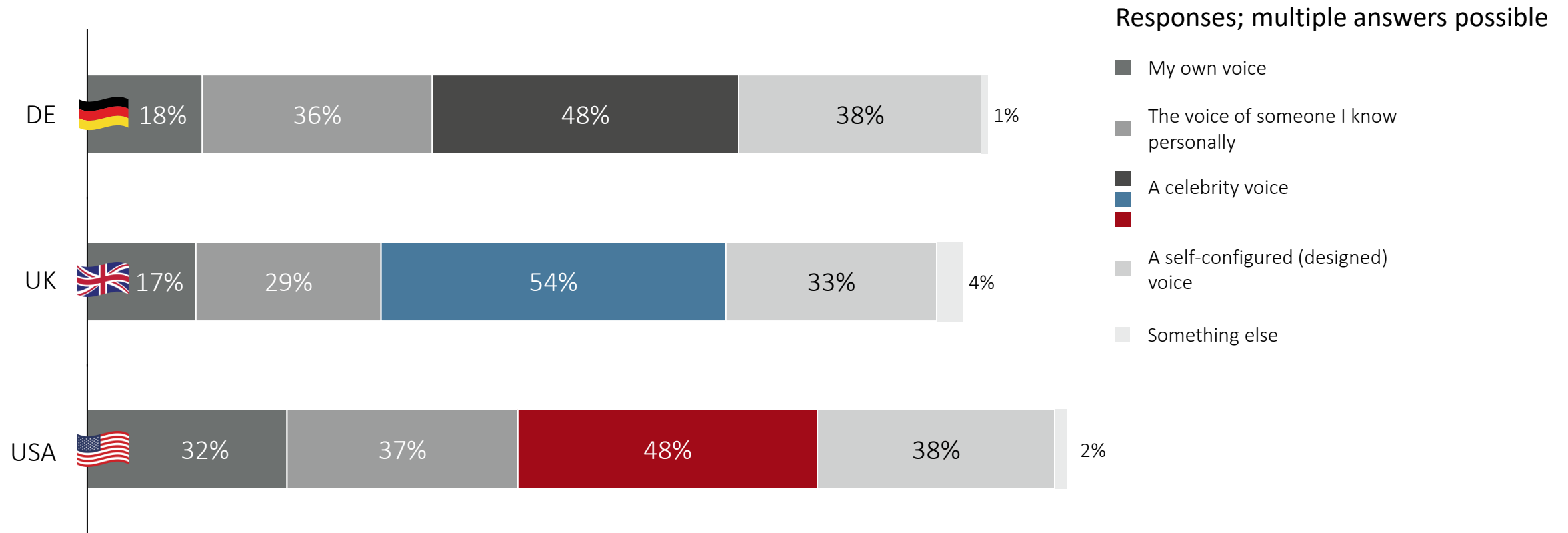
Responses

- Yes, I would like to be able to select the voice of someone I know.
- Yes, I would like to be able to choose from a large selection of voices.
- No, I don't need a selection of other voices.
- I have no opinion on the subject.

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

A celebrity voice is at the top of the wish list with a slight lead. The wish list in the U.S. is the longest.

Which voice(s) would you like to be able to select? | Subgroups that would like a selection



Basis: number of those surveyed = 100%; n = 814, 781 and 835 people per country who use (at least one) smart speaker with voice assistant in the household and would like to have a selection of voices to choose from

The voices of familiar people are more important for younger users than older ones, but a large selection is the more appealing option for all age groups

Option to select a different voice for the smart speaker

Responses

Age groups in years

I would like to be able to select the voice of someone I know.

I would like to be able to choose from a large selection of voices.

Which voice(s) (multiple answers possible);




Subgroup: would like to be able to select other voices

... my own voice

... the voice of someone I know personally

... a celebrity voice

... a self-configured voice

												
	18–29	30–39	40–54	55 +	18–29	30–39	40–54	55 +	18–29	30–39	40–54	55 +
I would like to be able to select the voice of someone I know.	29%	21%	21%	14%	31%	23%	18%	13%	30%	35%	31%	15%
I would like to be able to choose from a large selection of voices.	48%	56%	50%	37%	50%	52%	51%	34%	47%	44%	49%	45%
... my own voice	22%	20%	14%	10%	21%	17%	14%	9%	38%	37%	25%	20%
... the voice of someone I know personally	33%	38%	37%	34%	32%	31%	27%	23%	43%	36%	38%	16%
... a celebrity voice	49%	48%	50%	38%	49%	58%	58%	48%	54%	47%	47%	37%
... a self-configured voice	37%	37%	42%	31%	40%	31%	27%	36%	39%	37%	38%	37%

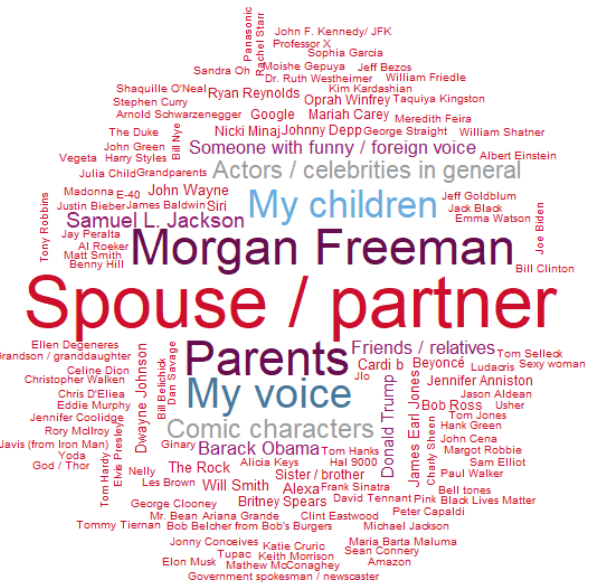
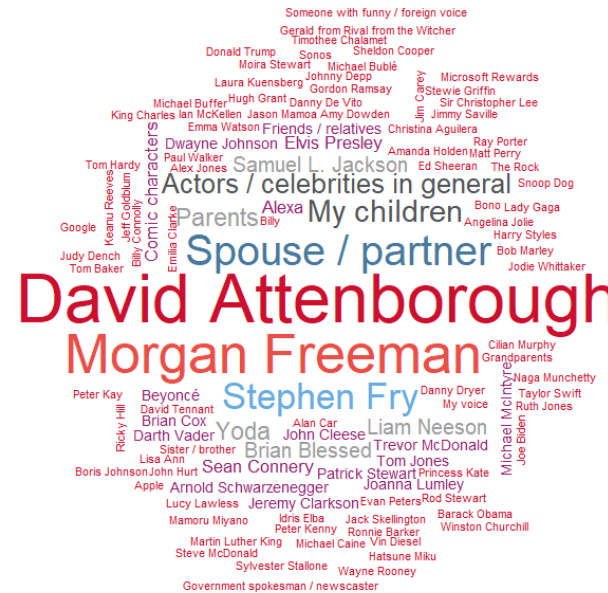
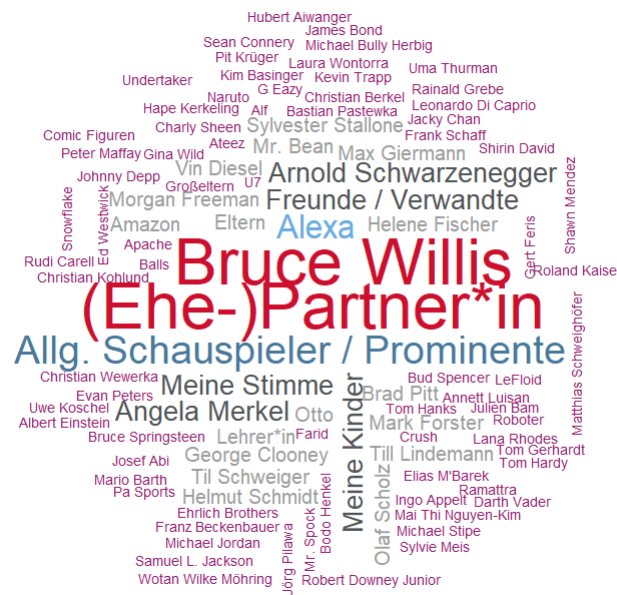
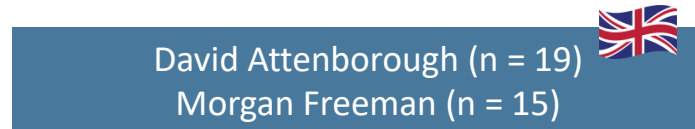
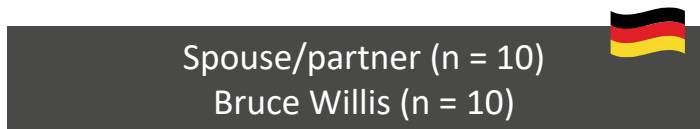
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA

Many celebrity voices are extraordinarily popular

If there's a specific person whose voice you'd like to have as your smart speaker's voice, you can enter it here.

Fill in the blank



Basis: n (without "no entry") = 153 people in Germany, 211 in the UK and 289 in the U.S. who have specific people in mind whose voice they'd like to have as their smart speaker's voice DE UK USA

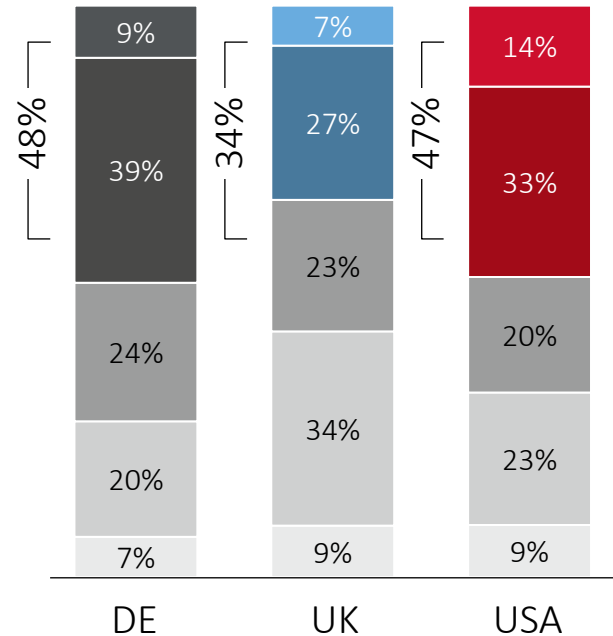
Opinions about smart speakers with a humanoid face design vary in Germany and the U.S., with the design largely rejected in the UK

And how would you describe a smart speaker that had a human-like face and/or could move around like a robot?

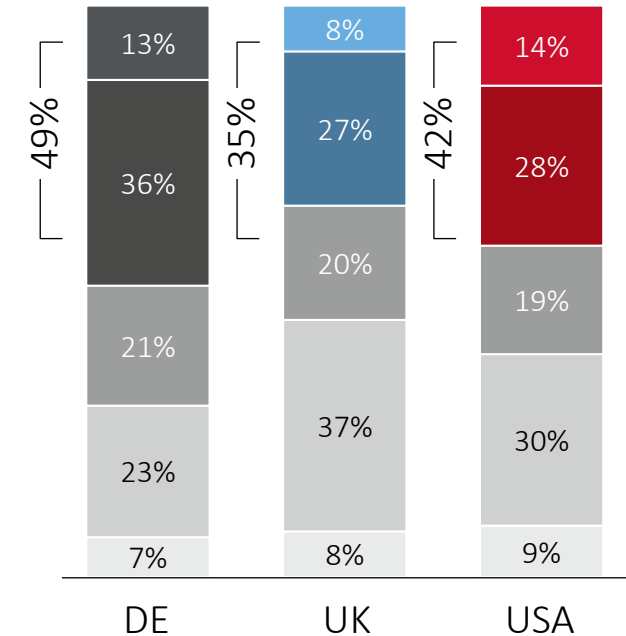
Responses



The idea of a smart speaker with a human-like face, but without expressions, is ...



The idea of a smart speaker with eyes that can move and look at me is ...



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

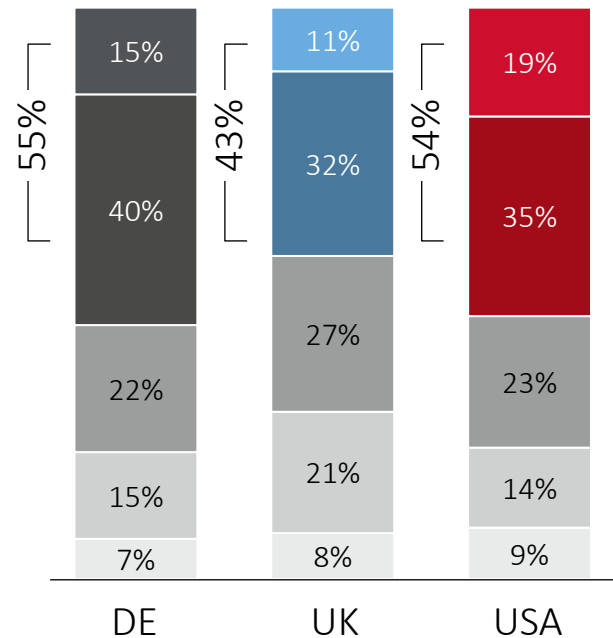
Preference for wheels: Smart speakers that walk around on limbs are viewed as creepy twice as often as those that move around on wheels

And how would you describe a smart speaker that had a human-like face and/or could move around like a robot?

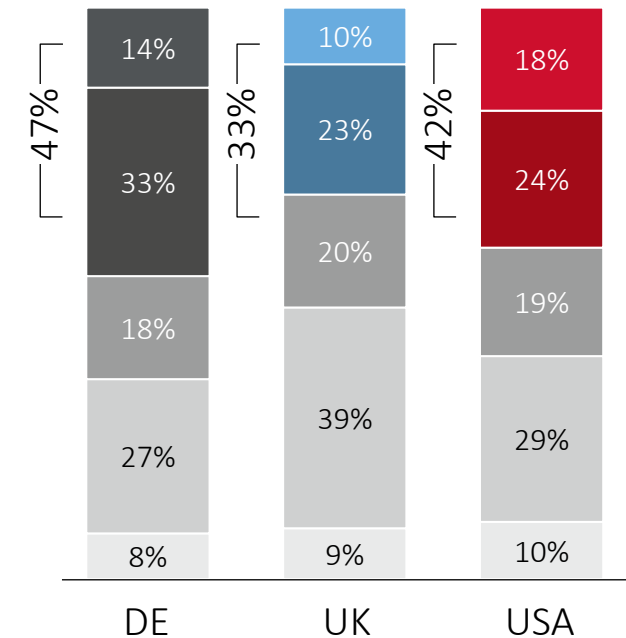
Responses



The idea of a smart speaker that could move around on wheels is ...



The idea of a smart speaker that could walk around with real limbs is ...



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

An openness to smart speakers with a humanoid design and maneuverability (for example, with wheels) drops significantly in the age group of 55+ in all three countries

Example with a smart speaker on wheels

Responses

Age groups in years

The idea of a smart speaker that could move around on wheels is ...




... wonderful

... very appealing

... not very interesting

... somewhat creepy

... I don't know

												
	18-29	30-39	40-54	55+	18-29	30-39	40-54	55+	18-29	30-39	40-54	55+
... wonderful	16%	15%	18%	8%	13%	12%	9%	9%	20%	21%	18%	14%
... very appealing	43%	43%	36%	33%	41%	31%	32%	21%	35%	36%	39%	25%
... not very interesting	21%	21%	22%	28%	26%	26%	25%	34%	22%	24%	24%	18%
... somewhat creepy	13%	15%	16%	22%	15%	22%	22%	27%	15%	11%	12%	27%
... I don't know	7%	6%	8%	10%	5%	9%	12%	10%	8%	8%	7%	16%

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA

5

HOW MUCH OF A CONCERN IS DATA
PROTECTION?

How Much of a Concern Is Data Protection?

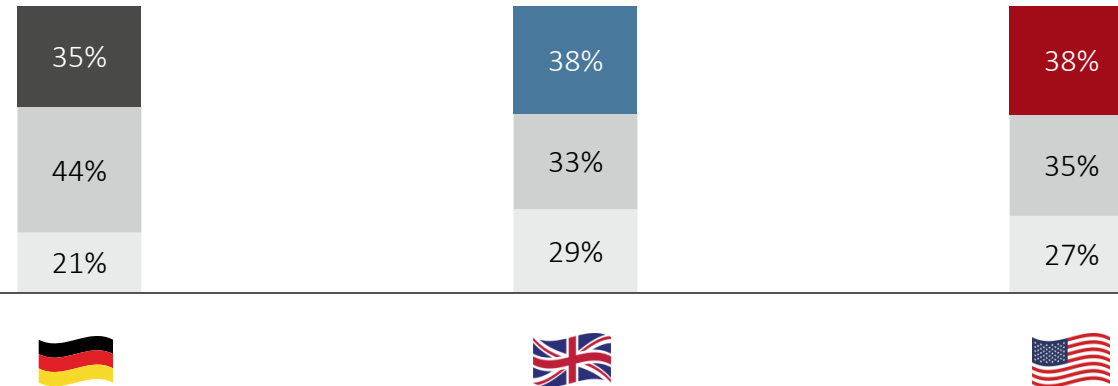
- > Nearly 40% in the UK and the U.S. and 35% in Germany are worried that their conversations will be recorded even without their smart speaker activated. The widespread theory that younger people are less worried about data protection does not hold true for smart speaker owners. What's apparently at work here is the privacy paradox, a contradiction between a person's intentions to protect their online privacy and their actual online behavior, which is usually due to the fact that they're not willing to give up habits they enjoy.
- > But the percentage of those who believe that their conversations are recorded even without speaker activation is much higher. **If you add those who believe that way and are worried and those who believe that way, but are not concerned, it's just below 80% in Germany and over 70% in the UK and the U.S.** In contrast, just about 20% in Germany and around one-third in the U.S. and the UK do not believe that intelligent speakers listen without explicit permission.
- > Just about one-third of those surveyed are concerned about permanent storage of data and conversations by the provider in all three countries, even though an overwhelming majority view this as a reality. The potential transmission of these stored data to third parties increases the concern to some degree in the UK and the U.S. and minimally in Germany.
- > So is the conclusion "Alexa is listening. So what?" justified? This leads to a decisive question. Because we surveyed active smart speaker owners who may be less worried about data protection than the average person, future research projects should clarify the following: **How many people would like to purchase a smart speaker, but ultimately refrain from doing so simply due to concerns about data protection?**



A large majority of those surveyed in all three countries believe that their conversations are recorded even without speaker activation, but that's only a concern for a fraction of them




Some concerns are frequently addressed in connection with smart speakers + voice assistant and data protection. What are your thoughts?

Even without activation, it records my conversations ...



Responses

Age groups in years

	I believe that and am (somewhat) concerned
	I believe that, but am not (very) concerned
	I don't (really) believe that

Germany				UK				USA			
18–29	30–39	40–54	55+	18–29	30–39	40–54	55+	18–29	30–39	40–54	55+
34%	34%	39%	34%	40%	40%	35%	32%	37%	37%	40%	36%
44%	48%	42%	35%	36%	35%	35%	25%	38%	37%	35%	24%
22%	18%	19%	31%	24%	25%	30%	43%	25%	26%	25%	40%

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA

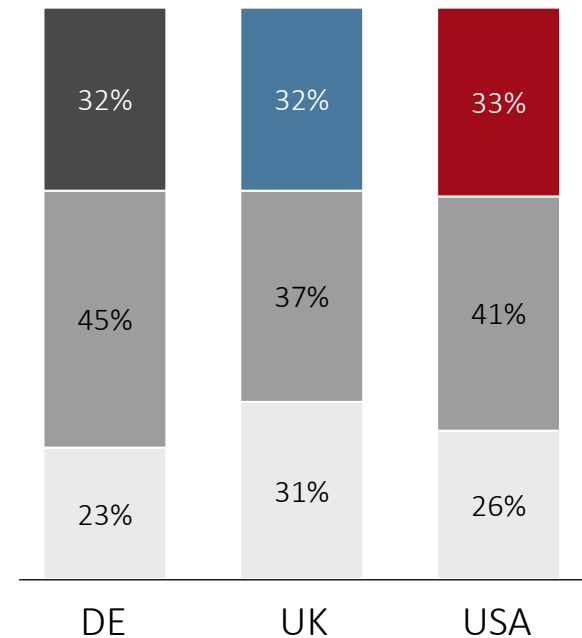
Around one-third of those surveyed in each country are concerned that their conversations are recorded; potential transmission to third parties increases that concern to some degree

Some concerns are frequently addressed in connection with smart speakers + voice assistant and data protection. What are your thoughts?

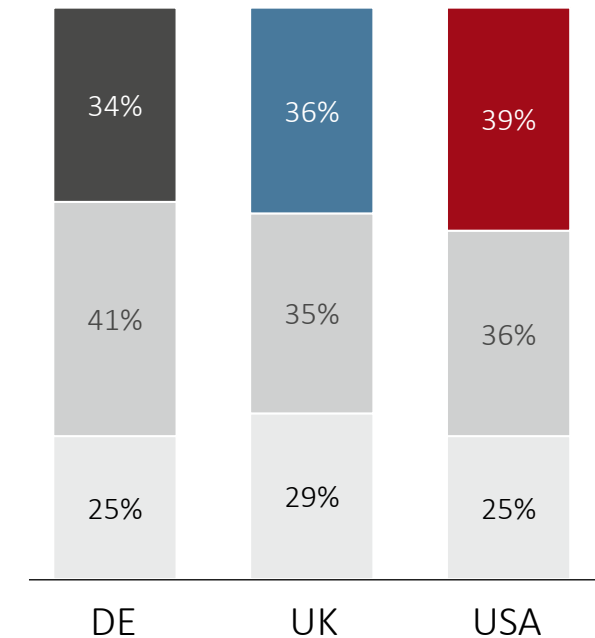
Responses

- I believe that and am (somewhat) concerned
- I believe that, but am not (very) concerned
- I don't (really) believe that

The provider permanently stores conversations



The provider stores all of my data (including conversations) and transmits them to third parties



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

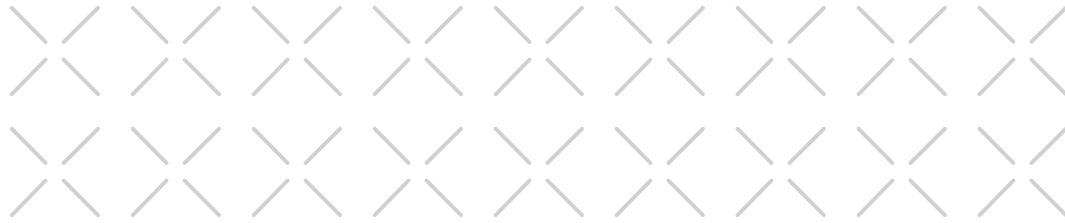
6

OPPORTUNITIES FOR SERVICES WITH VOICE ASSISTANTS

Opportunities for Services With Voice Assistants

- > Regardless of whether they're a stationary (or one day possibly even a walking) smart speaker at home or a feature on other devices, **voice assistants offer a whole lot more potential that has yet to be exploited.** Or at least that's the way the surveyed smart speaker owners see it.
- > **There's a great deal of interest in a wide range of services in all three countries,** but with a clear, country-specific ranking: The U.S. has the most positive assessments by far, while the UK is clearly the most reserved everywhere and therefore in last place.
- > **The majority of those surveyed in all three countries support some services as a voice assistant variant, with food services (restaurant recommendations, delivery orders) in the lead.**
- > **The majority of those surveyed are also open to reservations at restaurants as well as hair and doctor's appointments.**
- > **Shopping advice provided by artificial, speaking, online assistants and lists of recommendations for service providers such as tax advisers, lawyers and doctors are less popular,** but still appeal to the majority in the U.S. and around half of those surveyed in Germany.
- > And even the relatively sensitive services associated with health and finances enjoy a solid base of interest, **even if it is negligible in comparison.**
- > It's difficult to predict what sort of influence these intelligent assistants could have on the selection of providers. But **there will likely be an impact, and one that's negative for those who fail to adapt to these gatekeepers in time.**

First some background information: full description of services



Shopping advice provided by an artificial, speaking assistant (much like a “robo-adviser”) when I’m on a shopping website (manufacturer, retailer)

Ordering food from a delivery service

Scheduling appointments/making reservations
(restaurant, hair salon, doctor’s office, etc.)

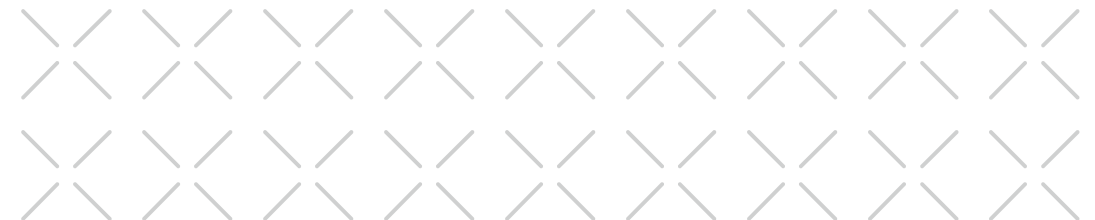
Preparing a digital, medical diagnosis on the basis of my information

Transferring money

Independently recommending a small selection of tax advisers, lawyers, doctors and similar service providers

Recommending a restaurant

Advice for investments provided by a speaking “robo-adviser” when I’m on a banking site, for example

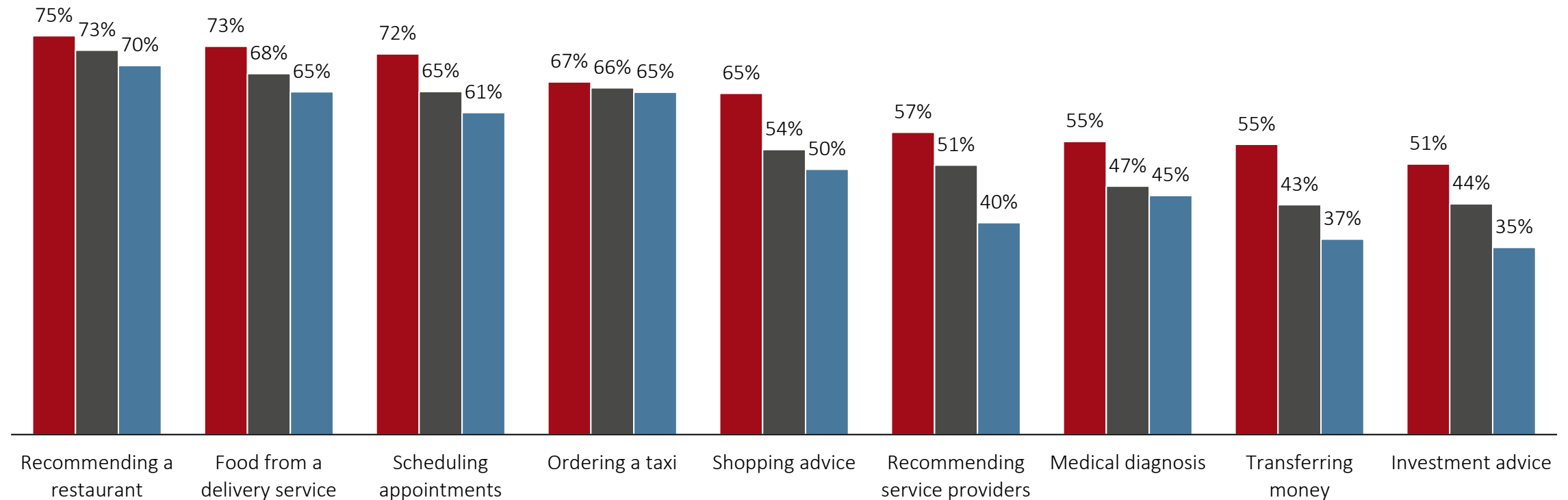


Voice assistant services vary in their level of appeal, but there is a country-specific ranking: the U.S. at the very front, the UK at the back

How appealing to you are each of the following voice assistant services?

Responses:

top two boxes (very appealing, appealing)

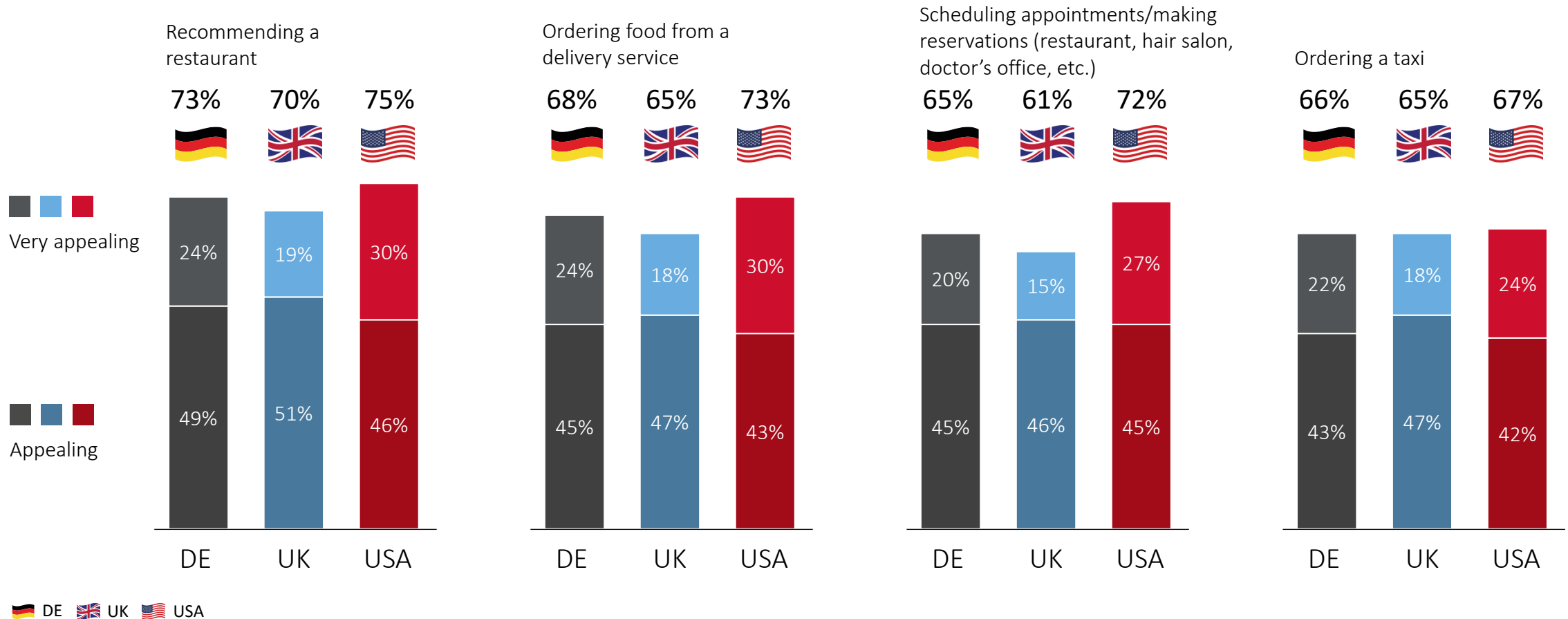


Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

■ DE ■ UK ■ USA

The majority of those surveyed in all three countries support some services as a voice assistant variant, with food services in the lead

How appealing to you are each of the following voice assistant services?

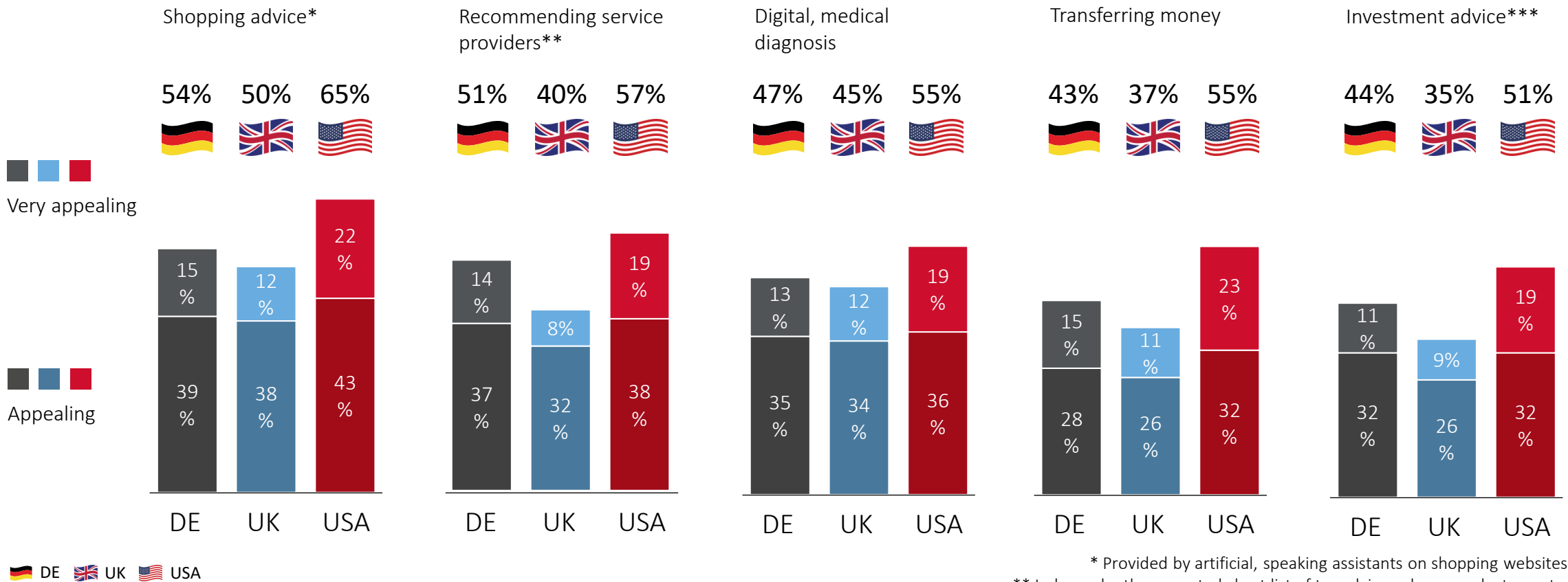


Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

There may be deviations between sums and individual values due to rounding.

Not all services are supported by the majority, but there's even a fair share of those who are interested in sensitive services (health, financial)

How appealing to you are each of the following voice assistant services?



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Provided by artificial, speaking assistants on shopping websites
 ** Independently generated short list of tax advisers, lawyers, doctors, etc.
 *** Provided by a speaking "robo-adviser" (e.g., on banking sites)

There may be deviations between sums and individual values due to rounding.

7

ASSESSMENTS OF FUTURE SCENARIOS

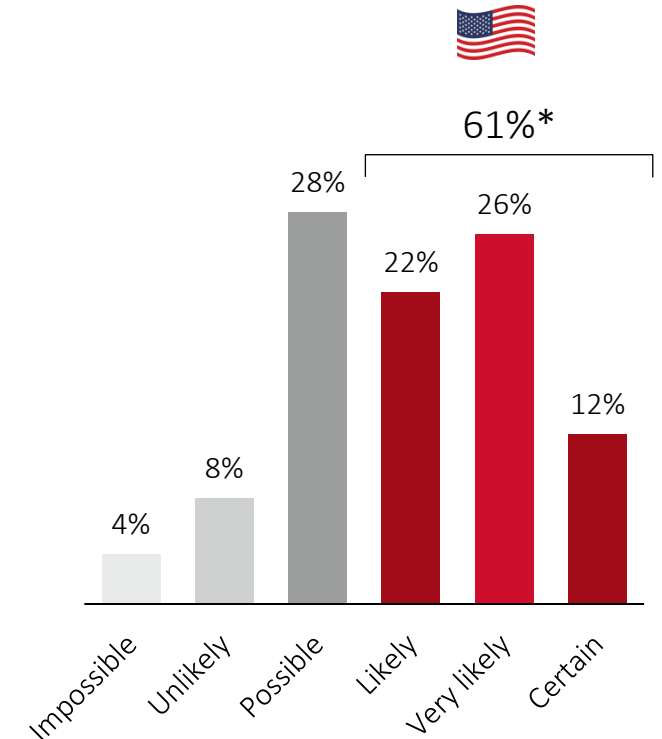
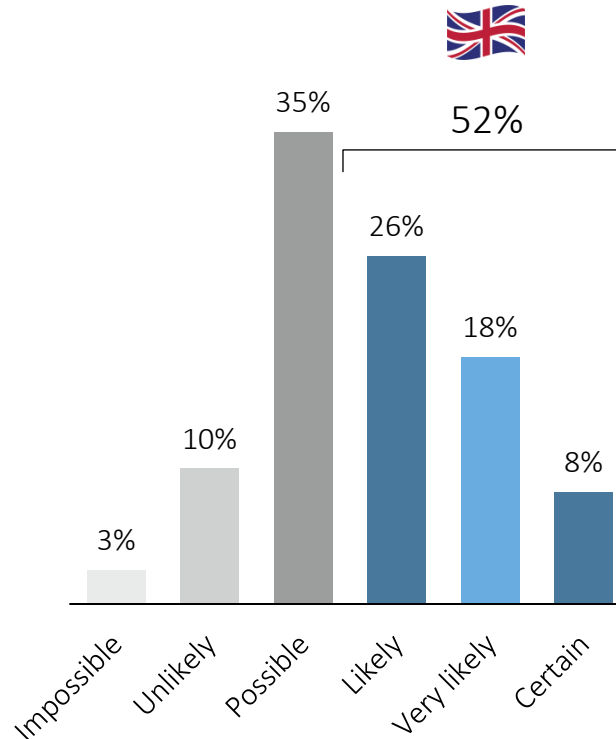
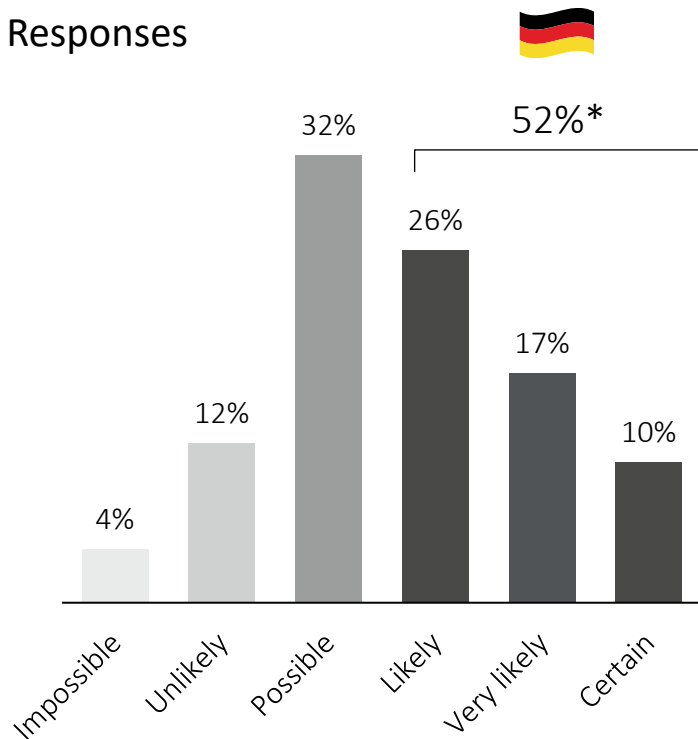
Assessments of Future Scenarios

- > **Future visions and desires are easy to express, but achieving social acceptance in reality is much more difficult.** In an effort to better categorize the opportunities provided by future integration of smart speakers or other voice assistants into an overarching social context, we asked survey participants to assess four future scenarios with voice assistants in a type of Overton window. The results: People will place a great deal of trust in intelligent voice assistants in the near future. In all three countries, 40% to 60% consider all of the future scenarios developed by NIM for the survey to be realistic, with those in the U.S. always the most optimistic and those in the UK the most hesitant. It's not just the cumulative values that are higher in the U.S. The scale value "Very likely" is selected at an unusually high rate, which expresses even higher certainty about the prognoses.
- > **All three countries assign the highest probability to "shopping via voice assistant."** For once, the UK is even on the same level as Germany. Just over half in the two European countries and around 60% in the U.S. believe that it is likely to certain that shopping via voice assistant will be normal in five years.
- > **When it comes to the issue of "trust," respondents express themselves more cautiously.** A total of 45% in Germany and 42% in the UK believe that it is likely to certain that many people will view voice assistants as more trustworthy than human advisers in five years. In the U.S., it's around half of those surveyed.
- > **Opinions vary on whether it's likely that voice assistants will be able to manage households in the near future.** Around half of those surveyed in the U.S. and Germany and at least 46% in the UK are of the opinion that voice assistants will have assumed much of the responsibility of managing the household (supplies, routine appointments, automated smart home) in many households in five years.
- > Those surveyed in Germany and the U.S. believe that voice assistants are more likely to schedule appointments for households than manage households. The UK is somewhat more reserved. **As a result, the countries are especially divided here.**

Just over half of those surveyed in Germany and the UK and a good 60% in the U.S. believe it is likely to certain that shopping via voice assistant will soon be normal

How likely do you think this prediction is? In around five years, shopping via voice assistant will be completely normal.

Responses



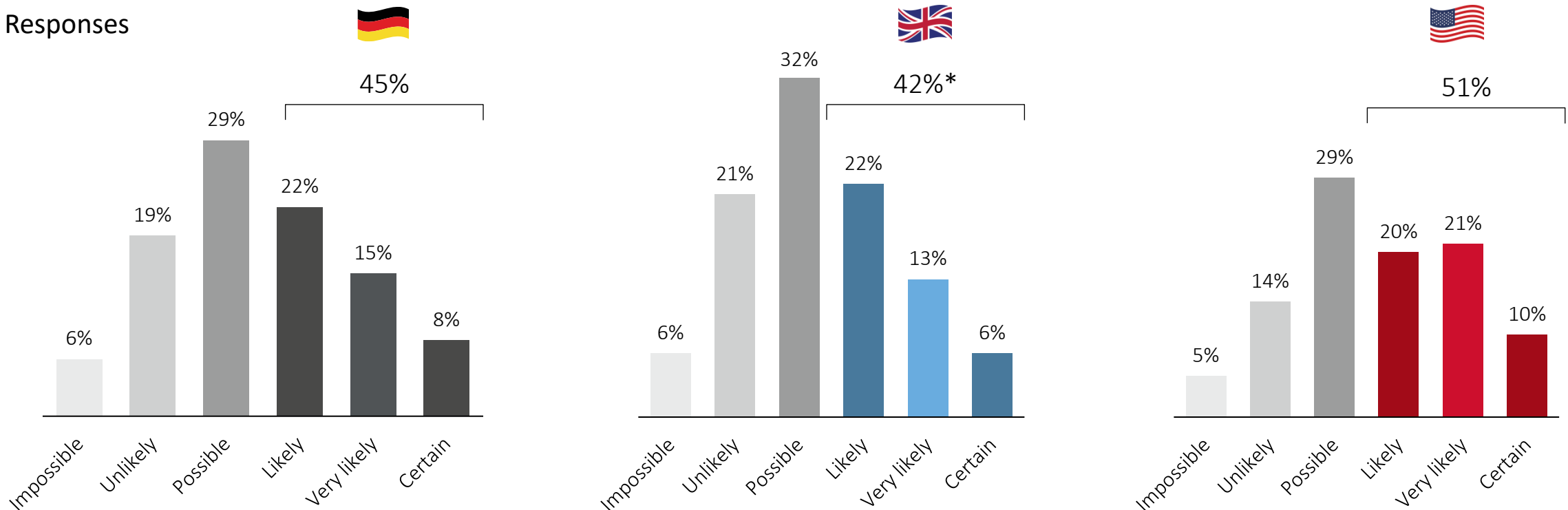
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Deviations between sum and individual values due to rounding.

When comparing the trustworthiness of voice assistants with that of human advisers, those surveyed in Europe are comparably reserved

How likely do you think this prediction is? In around five years, voice assistants will be more trustworthy for many people than human advisers.

Responses



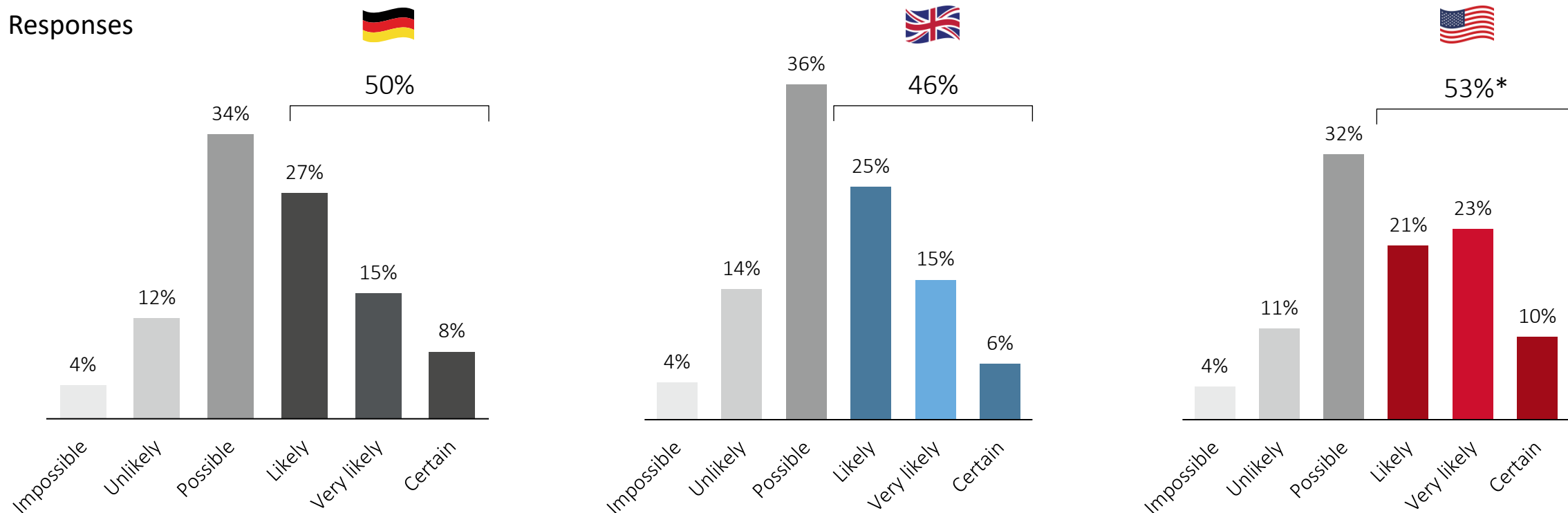
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Deviations between sum and individual values due to rounding.

Opinions vary on whether it's likely that voice assistants will be able to manage households in the near future.

How likely do you think this prediction is? In around five years, voice assistants will have assumed much of the responsibility of managing the household (supplies, routine appointments, automated smart home) in many households.

Responses



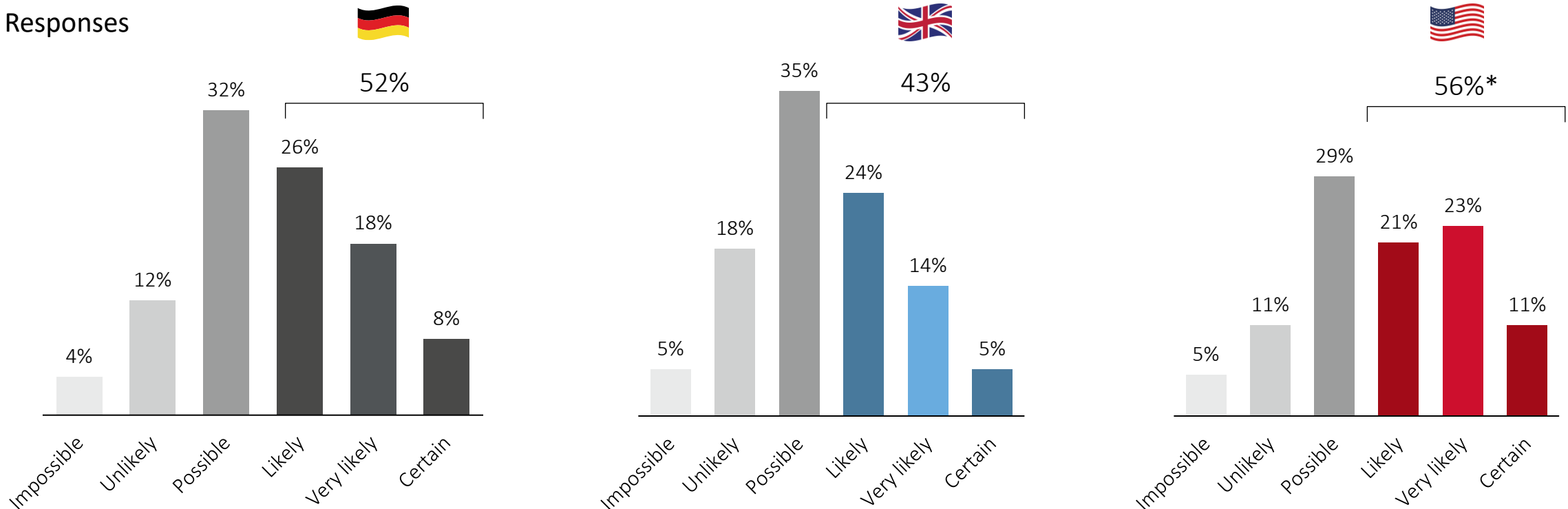
Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

* Deviations between sum and individual values due to rounding.

Just over half of those surveyed in Germany and the U.S. believe that it is realistic that voice assistants will be scheduling appointments in five years; the UK is more reserved

How likely do you think this prediction is? In around five years, voice assistants will have taken over full responsibility for scheduling appointments in many households.

Responses



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

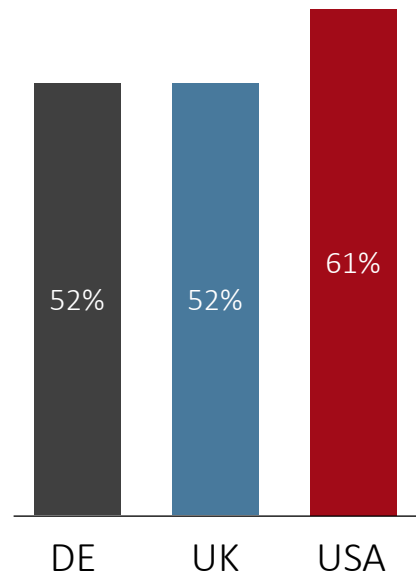
* Deviations between sum and individual values due to rounding.

Those surveyed in the U.S. assign higher probability to all of the future scenarios than those in Germany and the UK

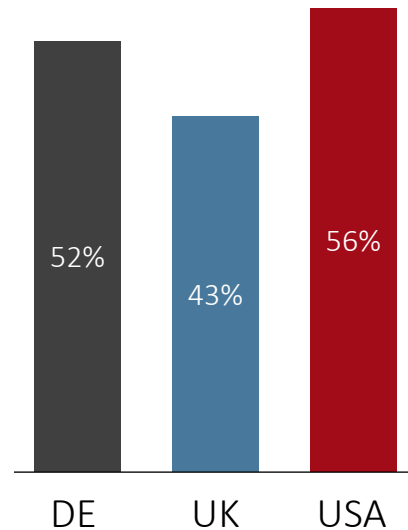
How likely do you think each of these predictions are? In around five years ...

Responses; top three boxes of the six-stage scale (likely, very likely, certain)

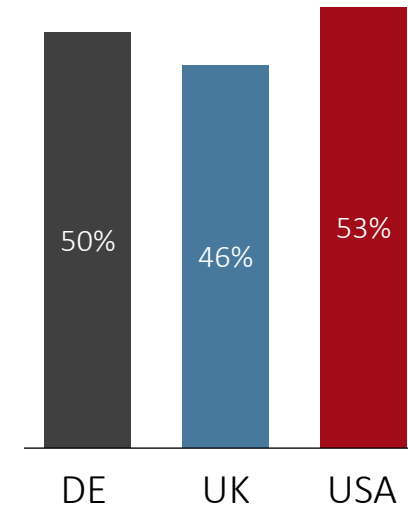
... shopping via voice assistant will be completely normal.



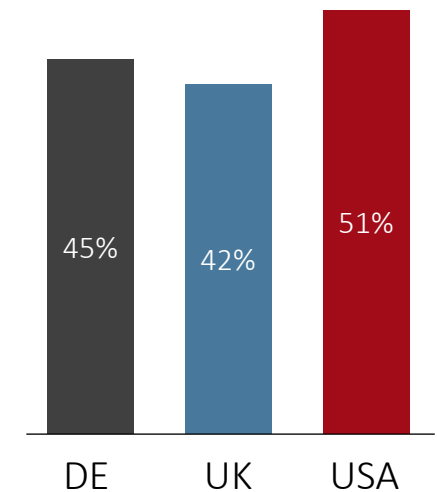
... voice assistants will have taken over full responsibility for scheduling appointments in many households.



... voice assistants will have assumed much of the responsibility of managing the household (supplies, routine appointments, automated smart home) in many households.



... voice assistants will be more trustworthy for many people than human advisers.



Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

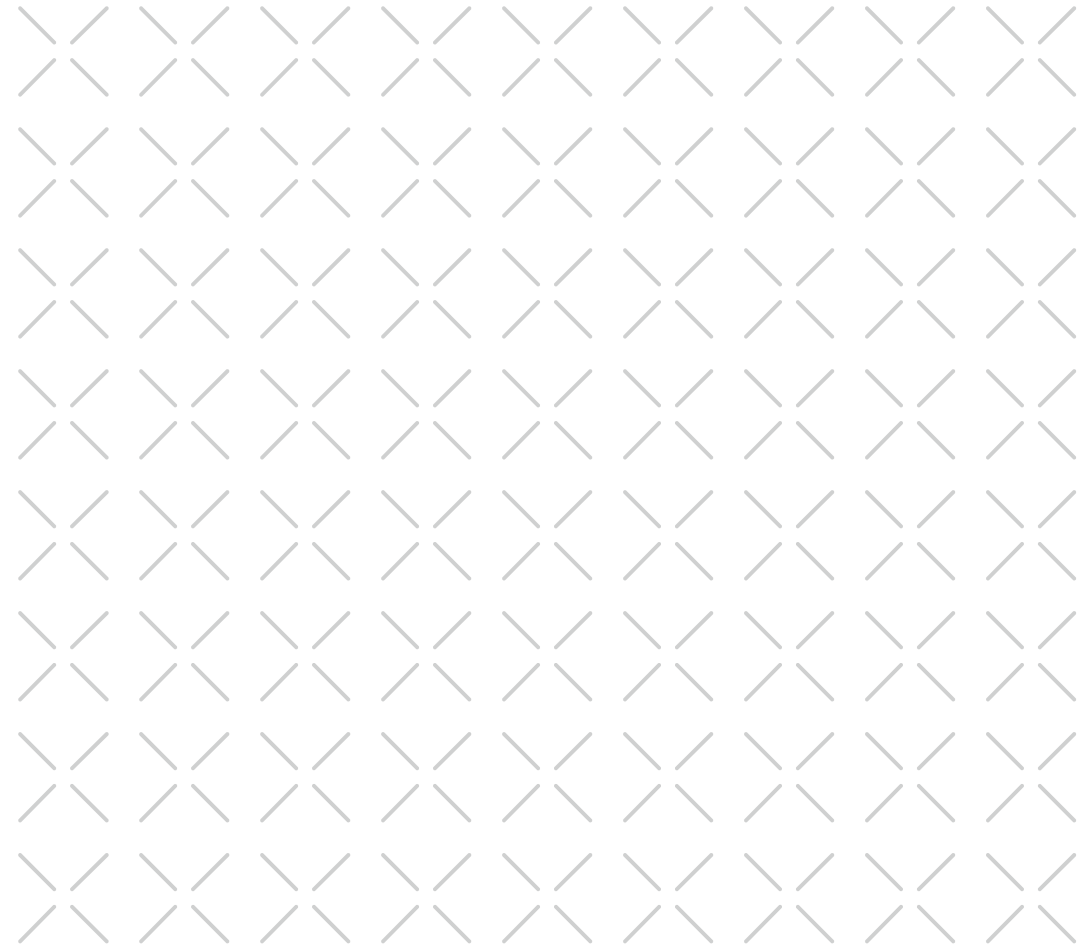
8

UTOPIAS AND DREAMS

8 Insights in Bullet Points

Utopias and Dreams

- > Asked if they have any future desires they'd like to share with manufacturers of smart speakers, those surveyed expressed between 300 and 400 concrete ideas per country (Germany 321, UK 390, USA 376).
- > Many expressed relatively pragmatic desires for completing household chores and other tedious tasks. Even more expressed a desire for organizational support. And to many, speakers also seem very helpful as a minder/protector.
- > Others expressed even more radical ideas: For them, it was an issue of coaching, which has everything to do with emotions and psychology. These desires concern friendships, self-optimization, coaching and even therapeutic support, much of which sounds like science fiction. But who can say how far we actually are from applications like those?



Utopias and Dreams (I)

Practical, manual support (open-ended answers coded; number of mentions)

			
Household cleaning	1	7	6
Cooking/preparing entire menus/nutritional tips	6	13	7
Operating the coffee machine/making coffee, tea	2	4	0
Yard work	0	3	0
Driving/parking in the garage/preheating the car	10	14	7
Opening doors	6	4	2
Controlling the thermostat/(pre)heating rooms/heating bathwater	3	6	3
Operating the washing machine/doing the laundry	2	2	0
Operating household appliances/controlling, programming all home devices	6	5	1
Controlling lights/lamps	1	4	4
Controlling electrical appliances	1	7	2
Works independently/completes tasks alone	7	9	6
Works for me/completes my tasks	6	10	8
Helps with finances/preparing tax return/oversees the budget/paying bills/transferring money	4	2	9
Obtaining information (from online)	7	6	6
Showing movies/shooting videos/camera function	1	4	5

Utopias and Dreams (II)

Organization (open-ended answers coded; number of mentions)

Ordering food/ordering food through the fridge/automatic reordering of food/ordering pet food/digital supermarket



22

11

5

Helps with shopping/shopping tour/helps buy clothes

3

2

11

Finding affordable prices/affordable shopping/affording gasoline

7

8

2

Planning vacations/booking the best flights/booking travel

11

12

1

Making calls/scheduling appointments (doctor, craftsmen, etc.)

13

14

13

Monitoring medications/reordering medications/medication reminders

4

5

1

Everyday tasks/reminders for everyday activities/everyday support/calendar

11

18

30

Fashion advice/putting together the right outfit from the closet

2

2

5

Automatic weather forecasts/announcing rain, snow/reliable weather report

5

3

6

Watching, protecting (open-ended answers coded; number of mentions)

Children/childcare



5

7

4

Pets/entertaining, caring for pets/helping with dogs

3

7

4

Emergency aid/calling police, emergency services/reporting a break-in to police, with surveillance images sent

5

1

3

Monitoring safety at home/securing windows, doors

4

2

6

More safety/safer




5

2

1




Utopias and Dreams (III)

Coaching (open-ended answers coded; number of mentions)




			
Human friend, partner/more humanity	10	25	19
Dating assistance/finding the right partner	4	3	9
Brightening the mood/helping with psychological issues	3	8	4
Therapy/medical treatments/diagnoses	1	9	3
Chatting/conducting the right conversations	14	10	1
Helping people in need of care/enhancing care with robots	2	0	1
Conversation in multiple languages/translation into other languages	2	0	4
Storytelling	1	4	4
Listening to music/writing songs	7	9	5
Exercise support/training plan/fitness trainer	3	3	2
Customized/more targeted to my desires/fulfilling my needs	9	8	8
Recommendations/general advice	3	11	7
Learning/training	1	1	4

Utopias and Dreams (IV)


Technology improvement (open-ended answers coded; number of mentions)

			
More sophisticated technology/needs to work better	14	14	21
Improved networking/devices need to be coordinated/Bluetooth	12	12	12
Holograms/3D functions	10	6	13
Artificial intelligence (AI)	9	6	5
Easier to understand and use/simpler	7	6	11
More data protection/end-to-end encryption	7	2	9
More precise voice control/secure voice commands/better understanding of voice commands	10	19	20
Appealing, empathetic voice/clearer voice/personalized voice/changeable voice	10	7	12
Gaming/entertainment features	1	2	5
Robot body/like a robot	4	7	3

Miscellaneous (open-ended answers coded; number of mentions)

			
Anything and everything/whatever's possible	3	0	1
I don't need that/no improvements necessary/can already do what it should	0	6	15
Predict Lotto numbers/make me a millionaire	0	6	4
More attractive appearance/design	2	0	2
Teleportation/space and time travel	2	2	3
Additional individual mentions	7	10	11

The most radical desires for voice assistants encompass nothing less than comprehensive coaching

Example original quotes (*some of them excerpts*) from an open-ended question about future desires in Germany 

“I would like to have an assistant that can have intelligent conversations with me, like those between two people.”

“It would offer recommendations – for example, what to do on the weekend – and tell me stories it makes up.”

“The devices should say things that can help with psychological issues when you feel like you’re at your wit’s end.”

“That it anticipates my needs and supports me without instructions.”

“... to plan my dream vacation and all that entails, from the flights to potential activities.”

“Dating tips.”

“That lonely senior citizens could engage in a real conversation with the speaker.”

“I would like for a smart speaker to greet me when I get home, cheer me up and be able to respond to my current mood.”

“To imitate my voice and communicate with my social contacts when I don’t feel like it! :)”

“Help me make decisions, by discussing the pros and cons with me. Offer intelligent recommendations of what I might like based on my preferences. That could be movies, books and all sorts of things.”

“Wake me up in the morning and then read out my daily schedule. Shopping in stores that I have selected. Transfer money. Call out my kids by name at certain times of day to remind them of what they need to do.”

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

The most radical desires for voice assistants encompass nothing less than comprehensive coaching

Example original quotes (*some of them excerpts*) from an open-ended question about future desires in the UK



„Ordering your repeat medications, assisting in job searches, helping with a lack of confidence or low mood, ability to diagnose.“

„I would like a smart speaker to be like slide coach/mentor. Positive vibes in the morning and encouraging sentiments.“

„Talk to it like a normal person as if they were sitting next to you.“

„Let them be able to know what I’m thinking.“

„To organise my whole life.“

„Find me a suitable partner / boyfriend.“

„Provide talking therapy sessions.“

„I would love to be able to talk to Alexa as a friend. I know it wouldn't be perfect, but it would be nice.“

„For it to be a person you have lost just to be able to speak to them again.“

„ Book a surprise holiday , so you don't know where you are going“

„ ..., plan themes for the garden based on colour and plant type preferences and help me to plan growing them and seasonal vegetables from seed.“

„It would be good if a smart speaker could detect depression and anxiety with changes in our voice and check in with us. It'd also be good if it could chat and have a conversation, maybe used as an aid for elderly and lonely people.“

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

The most radical desires for voice assistants encompass nothing less than comprehensive coaching

Example original quotes (*some of them excerpts*) from an open-ended question about future desires in the U.S.



„I would ask the manufacturers if they can add a function where smart home systems might ask how your day is after you come home, it would be like having a friend.“

„Why not be my counselor and therapist and prescribe my medications? Why not be my dating advisor? It would be nice if it could really be in my head and just know what I like, want, desire.“

„... keep the voice of someone that we love ...“

„I would want it to recite and say what is in my mind.“

„Match me with the perfect date.“

„Read my mind.“

„Keep track of my eating habits and recommend diets that could aid my health “

„... listen to how I'm feeling when I get home and give me tips kind of like a therapist ..“

„To help me regarding my decisions and do the critical thinking.“

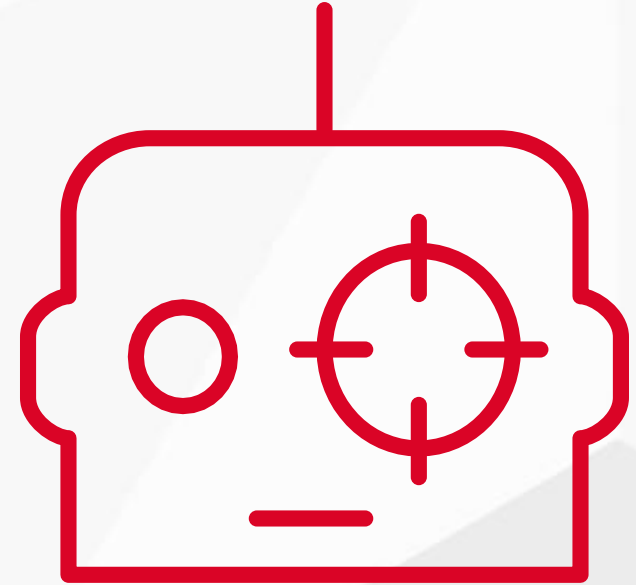
„Give it its own personality. Let it make jokes. Make it like talking like a companion would.“

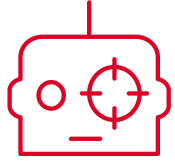
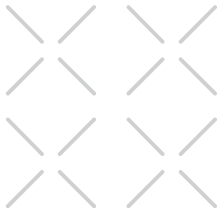
„I would like them to build educational smart assistant, and this might seem extreme, but I would like them to have smart assistant that can act like a companion like a girlfriend or spouse“

„I want my device to greet me when I wake and ask me questions like, “Are you warm enough?” “What should we make for dinner?” Remember the bug guy is coming tomorrow.” ...

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

OUTLOOK





Outlook (I)

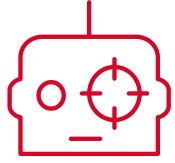
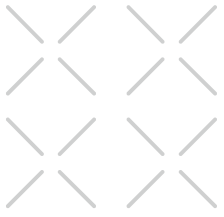
“Technology always develops from the primitive, via the complicated, to the simple.” (Antoine de Saint-Exupéry)

User-friendliness is a key factor in the success of technical products. It would appear that smart speakers still offer plenty of potential for improvement in this arena. A large percentage of the smart speaker owners surveyed complain about overcomplicated voice commands and disappointing experiences with the function of applications, revealing that developers still have plenty of room for improvement.

But improving weaknesses is not the only important issue here. Based on the insights provided by this survey, there’s still plenty of development opportunities for the future of smart speakers and voice assistants that have yet to be exploited. A large majority of users have unfulfilled wishes related to the voice. And there appears to be a solid base of fans among the early adopters who are open to a more humanoid design.

Survey participants expressed a promising level of interest in a wide range of voice assistant services. More in-depth exploration of this topic would certainly provide even more interesting insights.

The open-ended answers about dreams for the future have also revealed very far-reaching ideas that not only address practical workload reduction, but also many radical ideas on an emotional and psychological level. These center around friendships, self-optimization, coaching and even therapeutic support, much of which sounds like science fiction. But who can say how far we actually are from applications like those?

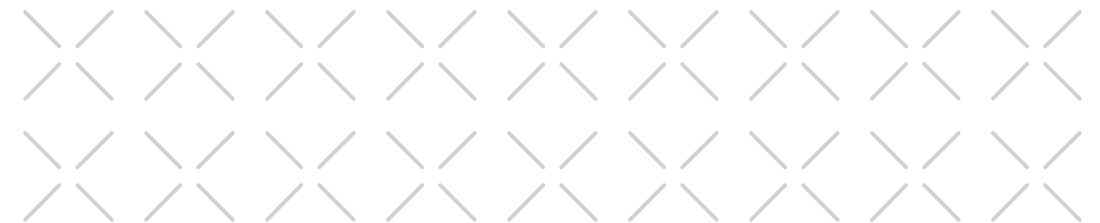


Outlook (II)

Back to the present: Will the current technology be able to win over the majority of the population? If you follow the reports on the reach of smart speakers over time, you soon notice that the penetration rates reported on a few years ago are similar to those today. Interest currently appears to be restricted to a fraction of the population, with data protection a potential barrier. Most of those who participated in our survey believe that their conversation could be listened to and recorded without speaker activation and their conversations and data stored by the provider. Apparently, this is not a concern to many users. But what does it look like with the rest of the population in the three countries? How many people would like to purchase a smart speaker, but ultimately refrain from doing so simply due to concerns about data protection? Could this be an important tool for increasing reach and boosting the success of smart speakers?

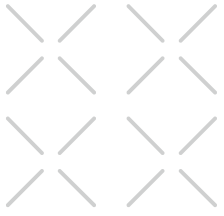
Or are smart speakers – which primarily serve as a speaker – more a niche product, while voice technology in other devices such as smartphones, earphones and laptops will continue to establish themselves?

Understanding the perceived benefits as well as the unfulfilled desires and ideas for additional areas of application is an important step in anticipating the future market success of new technologies – and their impact on purchasing decisions and media consumption. We will continue to monitor topics like these in order to “*give consumers a voice.*”



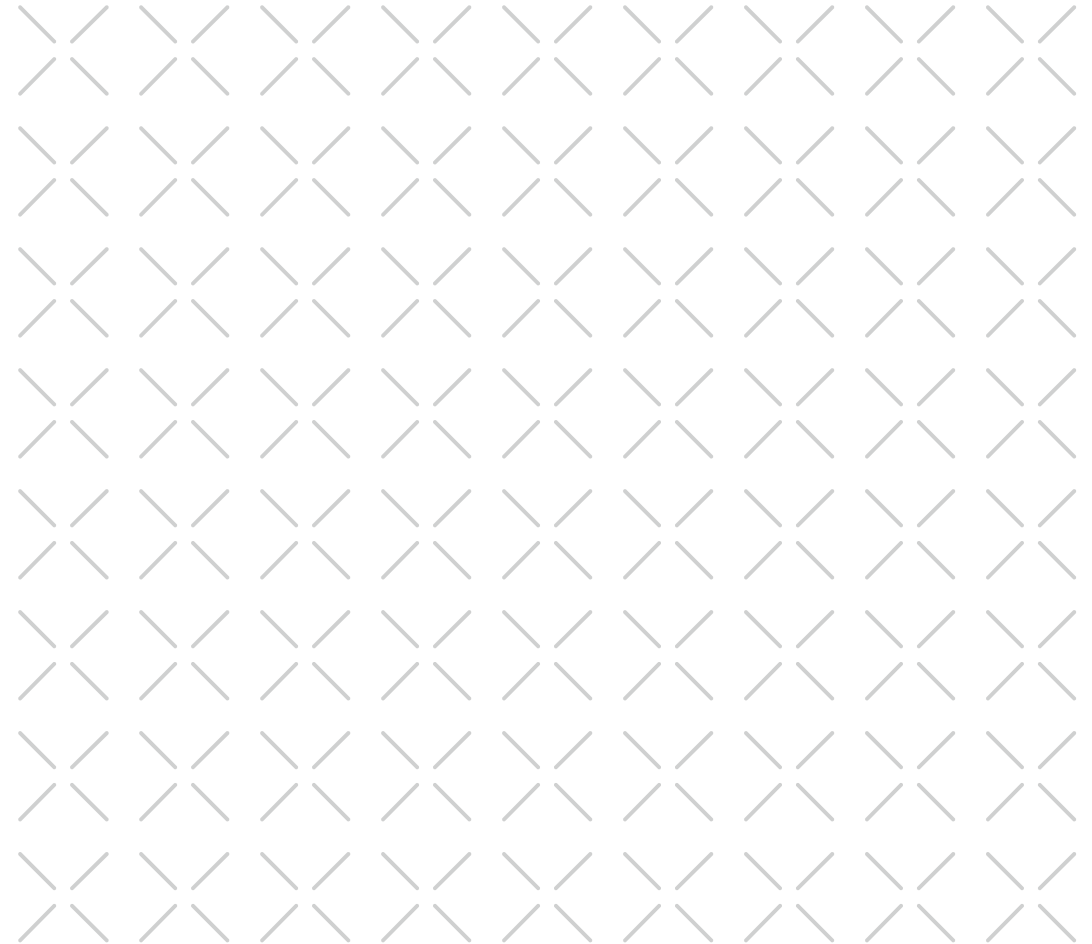
RESEARCH METHODS, SAMPLE STRUCTURE

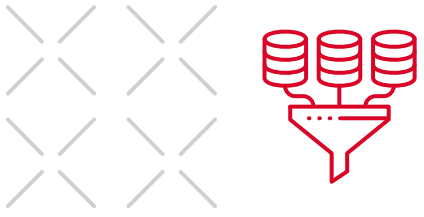




Research Method Summary

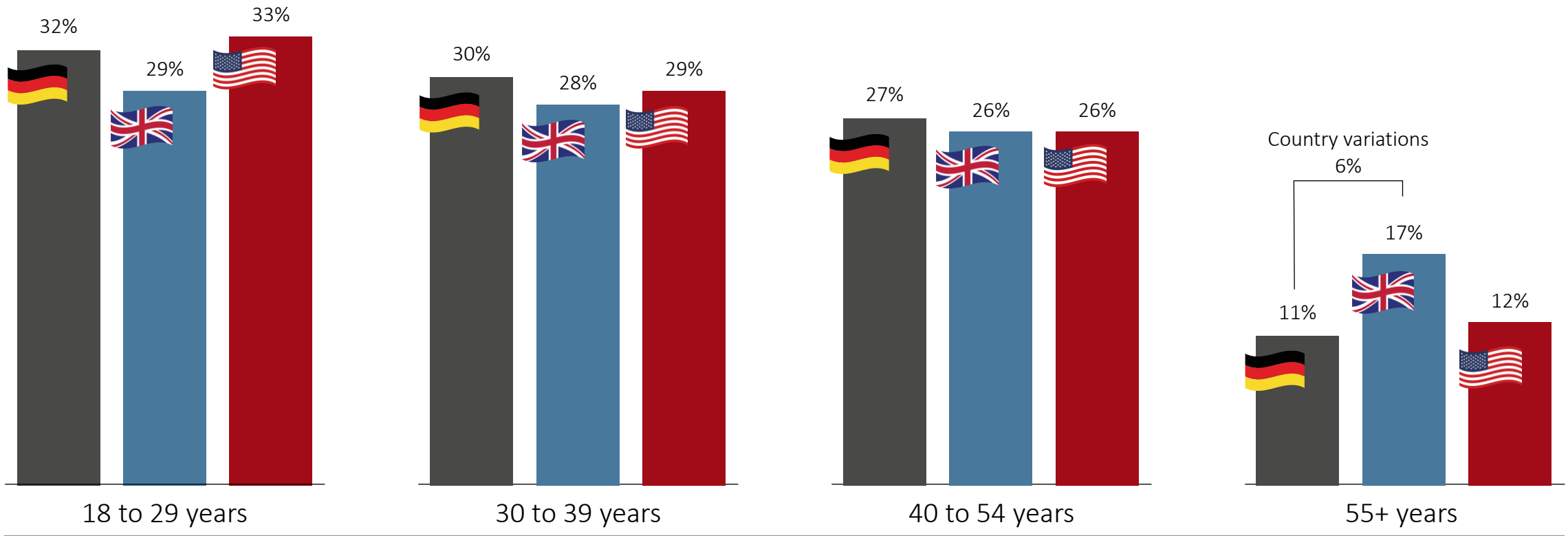
- > Online interviews (*with responsive design for a variety of devices*)
- > Target group: people who own and actively use smart speakers with voice assistant at home
- > Germany, UK and USA
- > Net sample: approx. 1,100 survey participants each
(*Germany: 1,121, UK: 1,108, USA: 1,096*)
- > Recruited from the QuestionPro online panel
- > Required gender distribution of approximately 50/50 – otherwise, no other quota requirements
- > Fully structured German and English-language questionnaires
- > The statements of the individual questions were generally randomized
- > Average interview length: approx. ten minutes





More older users were surveyed in the UK than in Germany and the U.S.

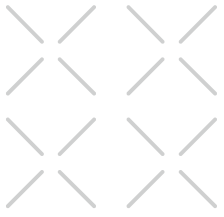
Characteristics of the sample structure






Age distribution

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA



Comparison of the sample structure data

			
One person	22%	16%	17%
Two people	36%	35%	27%
Three or more people	43%	50%	56%
Children in household	42%	43%	48%
Employed full-time	65%	53%	49%
Part-time	17%	19%	19%
Employed	82%	72%	68%
I'm very interested in new technologies and usually do well with them.	59%	46%	56%
I'm interested in new technologies, but sometimes they're too complicated and I lose interest.	31%	35%	27%
I'm interested in new technologies, but I usually need help from others.	8%	16%	12%
I usually have a hard time with new technologies.	2%	3%	5%

Basis: n = approx. 1,100 people per country who use (at least one) smart speaker with voice assistant in the household

 DE  UK  USA