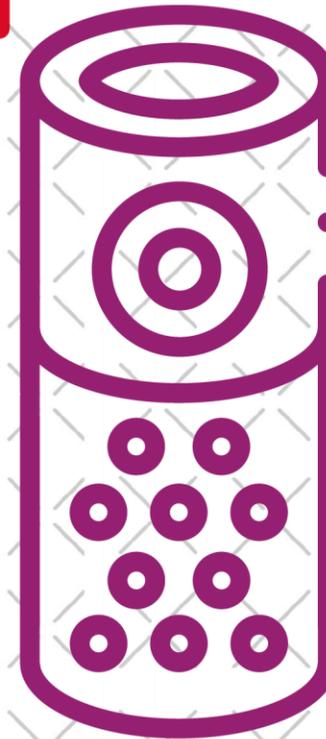


How smart are smart speakers ?

How digital roommates are changing our lives

CLAUDIA GASPAR & ANJA DIECKMANN



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September 2019

Authors: Claudia Gaspar and Dr. Anja Dieckmann

claudia.gaspar@nim.org

anja.dieckmann@nim.org

Internet: www.nim.org

Foreword

"We shape our tools and, thereafter, our tools shape us."

John Culkin (1967)

Through voice interaction, smart speakers change the way we find, analyze, evaluate and then decide on products and services available on the Internet. Smart speaker create a new "gatekeeper" between consumers, retailers and manufacturers, with the potential to change our search, comparison and purchasing behavior in the long term.

The exact role these new gatekeepers will play and how they will change the information seeking and communication behavior – and thus the power structure – between customers, retailers and manufacturers is not yet clear. But it is already clear that the voice assistants do have an influence on the purchase decision process among those who use them and that all market participants have to deal with these changes.

Currently, the discussion on these issues is highly polarized – on the one hand by the optimism of those who are so deeply involved in the development of the new technology that they may lack distance. On the other hand, by those who have not yet had their own experience

with the new technology and run the risk of declaring their own skepticism the general truth.

We have decided to give voice assistants' early adopters a chance to share their experiences in order to understand how the new technology has already changed their consumption and shopping habits. Of course, it is by no means certain that future smart speaker users will behave in the same way as current users. But the study of early adopters is a good way to move from the abstract level of technology and concepts to the concrete level of behavioral changes, desires and expectations of consumers.

The result is a very differentiated picture: "the" typical smart speaker user does not exist, but there are user types with different profiles and preferences. And for all users there are insights into their preferences and experiences in dealing with the new digital roommate, which are important to understand for manufacturers and retailers in order to prepare for the future.

Nuremberg, September 2019

Dr. Andreas Neus

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1

Chapter 1

Management summary



Management summary (1)

- Even though smart speaker users in Germany are currently still a small consumer group, some indicators in our study suggest that this niche will soon develop into a larger target group:
 - The users are predominantly younger people and often in the family phase, which means that an above-average number of children and young people – that is, the future household founders – are already growing up with this technology as a matter of course.
 - Most users are highly satisfied with their smart speakers. The survey results indicate a high level of customer loyalty and willingness to recommend. Both factors are important indicators of the success of new products in consumer research because they are the basis for high repurchase rates and reliable dissemination through Word of Mouth. The fact that the smart speaker fans still see some flaws shows there is not, for example, an unrealistic "initial euphoria", but a

serious, viable enthusiasm. According to everything that can currently be read in the media, there can be no doubt that manufacturers will continue to refine smart speakers rapidly, continuously improving weaknesses.

- The roles, tasks and potentials that current users expect from their digital helpers are manifold. They are not only interested in practical functions that make life easier, and not just in entertainment or easily accessible information. The potential of smart speakers also includes – and this certainly has a lot to do with speech and voice – the satisfaction of very personal, emotional needs. This is probably one of the reasons why 60% of the respondents still see room for improvement in their smart speaker's voice, namely in the direction of more cheerfulness and emotionality.

Management summary (2)

- The fact that smart speakers and voice assistants change everyday behavior and routines is clearly confirmed by the vast majority of users surveyed. Initial decisions have already been delegated; 72% have already transferred all or part of their music selection to the digital helpers.
- Unlike streaming services for music and films, other products and services do not yet offer optimal conditions for unrestricted ordering. Although the addition of displays was an important step in this direction, voice-controlled shopping (for various reasons) cannot (yet) keep up with ordinary online shopping or stationary shop visits. Users who already have experience with it are very critical here. But the willingness to make use of the smart speaker – in the hypothetical case of optimal functioning and to involve it in purchasing decisions is extraordinarily high.
- It is precisely the foreseeable willingness of smart speaker owners to no longer make certain decisions in the usual way, but to have digital helpers create shortlists or even select products themselves, that is of great relevance for manufacturers and retailers, especially with regard to brands and marketing.
- The emotional ties, the critical engagement and the far-reaching visions of the interviewees show that the manufacturers of the devices can exploit a rich pool of suggestions for improvement and ideas if they involve experienced users in the development process.

Management summary (3)

- The issue of trust and trustworthiness will certainly play a major role in determining to what extent and how quickly technology will change the decision-making behavior of consumers on a broad scale. However, the study participants also see surprisingly low barriers in this question. Not only do merely 27% of them consider it impossible or unlikely that voice assistants will soon be more trustworthy than human counselors. Many of the openly expressed visions of the future revolve around voice assistants becoming life and everyday advisors, companions, partners, protectors or even therapists. If smart speaker vendors were to be more sensitive about data privacy in the future, the benefits of voice-controlled supporters could very likely soon convince more critical and cautious consumers.
- Voice assistants will change both consumer purchasing decisions and manufacturers' and retailers' marketing decisions. This study

gives you insights into the behavior and expectations of users as well as leverage points for marketing professionals.

2

Chapter 2

Motivation



Motivation

- "One third of Germans talk to Alexa, Siri and Co." – this is the headline of a [press release from Postbank](#) from August 2019, which goes on to say: "The number of users has thus increased by twelve percent within one year". The results come from a representative survey conducted in February and March 2019. In a further survey, the "[Consumer Technology 2018](#)" trend study, Bitcom and Deloitte came to the conclusion that "one in eight Germans aged 18 and over (13%) <...> already <owns> an intelligent speaker with a digital language assistant such as Amazon Echo, Google Home or HomePod". The trend towards using voice-controlled digital devices in everyday life is therefore obvious. But what are the consequences for consumer decisions?
- This is exactly the question we ask ourselves at the Nuremberg Institute for Market Decisions. After all, one focus of our research is on the influence of new technologies on purchasing decisions. The purpose of this survey is to show what effects living with smart speakers including voice assistants such as Alexa or Siri has on households that have opted for such a purchase. In order to be able to actually assess experiences, disappointments and development potential, only people who have at least one smart speaker at home and also use it were interviewed.
- In the focus of the study: How do voice assistants influence habits and decisions in everyday life as well as consumer behavior? What changes are effected by intelligent speakers? And: Can these household helpers become relevant influencing factors and (co-)decision-makers that marketing will have to take more care of in the future?

3

Chapter 3

A few basic facts



A few basic facts (1)

- The survey for this study was conducted online in the German panel of the provider QuestionPro. There was no quoting, but only screening for the possession of smart speakers in the household. The sociodemographic structure of the 1015 respondents aged 18 and over was left to chance. But face validity is convincing:
 - The gender ratio is – similar to the overall population – almost balanced.
 - People in the first half of life are particularly interested in smart speakers and voice assistants: the majority of those who own such devices are under 40 years old.
 - The distribution of household sizes also fits the picture. Admittedly, two-person households are somewhat under-represented compared to the total population, families with children are somewhat over-represented. However, this can simply be explained by the younger age structure.
- The important point is that if today's children grow up with smart speakers in the household and as young adults and household founders are already accustomed to voice-controlled applications, this should further accelerate the spread of smart speakers in the future.
- Due to the age structure, the interviewees are mostly employed and generally get along well financially.
- 70% of the respondents – significantly more than the average population – are also open to new trends and like to be the first to try something new, that is, they are classic early adopters who marketing managers typically focus on for the implementation of new products and services.

A few basic facts (2)

- If you look at the shares of smart speaker providers and brands, Alexa is far ahead in the households of the respondents. Google Home is the only noteworthy competitor, but only achieves a third of Alexa's penetration with its Speaker Echo. In the group of 30 to 40-year-olds, however, it reaches an above-average 30%. Apple's Siri with the HomePod, on the other hand, only reaches a little over a tenth of Alexa's range, but is more strongly represented among the under-30-year-olds in the sample.
- With regard to gender, there are no major differences among the Alexa users surveyed. Overall, they are more likely to be over 40 years old and live in two-person households. The Google home owners in the sample, on the other hand, tend to be younger and in the family phase.
- In general, respondents to the survey usually chose a single provider: 9 out of 10 respondents had only one smart speaker system, only 9% purchased an additional model from a second provider. In the latter case, interview participants were asked to answer all questions only for their most frequently used voice assistant.
- For a few years now, smart speakers have been offered with additional screens that visually support applications (i.e., skills), display additional information and, for some functions, can also be operated silently via touchscreen as an alternative to voice input – an additional benefit that should further fuel demand. In the present survey, 60% stated that at least one of their smart speakers also has a display. For those who had purchased their smart speakers within the last year, the figure was 67%. In the group that has had its system for some time, the proportion of display devices was only 44%.

A few basic facts (3)

- Overall, the sample consisted to a large extent of "new owners": Only 23% had their smart speaker for more than a year, 41% for 6 to 12 months and 36% for less than 6 months. It can therefore be assumed that the vast majority of participants in this study are still very much aware of the changes brought about by the smart speaker.
- For Google Home, the proportion of smart speaker newcomers who have had their device for less than 6 months is 39% higher than for Amazon's Alexa (31%). 36% have the digital helper from the Google group for at least six but less than 12 months at home. This share is 48 % for Alexa owners.
- The motives and motivators for the acquisition of Alexa & Co. are manifold; a clearly dominating driver cannot be recognized. With a slight lead and 43%, the most frequent mention was one's own curiosity. In second place follows the personal purchase recommendation of friends, acquaintances or family members. This is a prerequisite for the further spread of smart speakers

and voice assistants using the snowball principle – experience has shown that this is one of the most important sales drivers. There are no conspicuously frequent combinations of reasons. Ultimately, for each interviewee it was probably an interplay of various factors, such as "Word of Mouth and Mouse" (personal or social media recommendation or seen at others' places), self-interest or intrinsic motivation, successful marketing and mediation by another person.

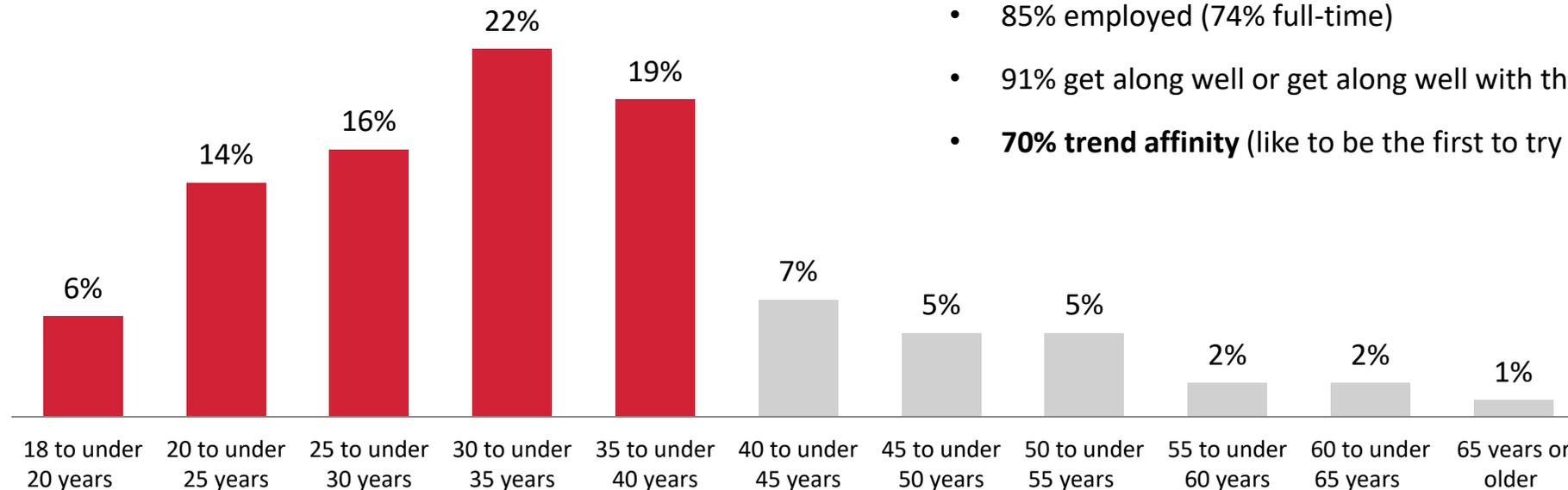
Research method summary

- Online interviews (with responsive design for different devices)
- Targets: Owners and users of smart speakers with voice assistants in their own households in Germany
- Net sample: 1015 respondents
- Recruited from the QuestionPro online panel
- No quotas
- Fully structured German language questionnaire
- All answers or statements were randomized (per question)
- Average interview duration: 10 minutes

Smart speaker owners are predominantly trend-oriented young families

Structural characteristics of the sample

Age distribution



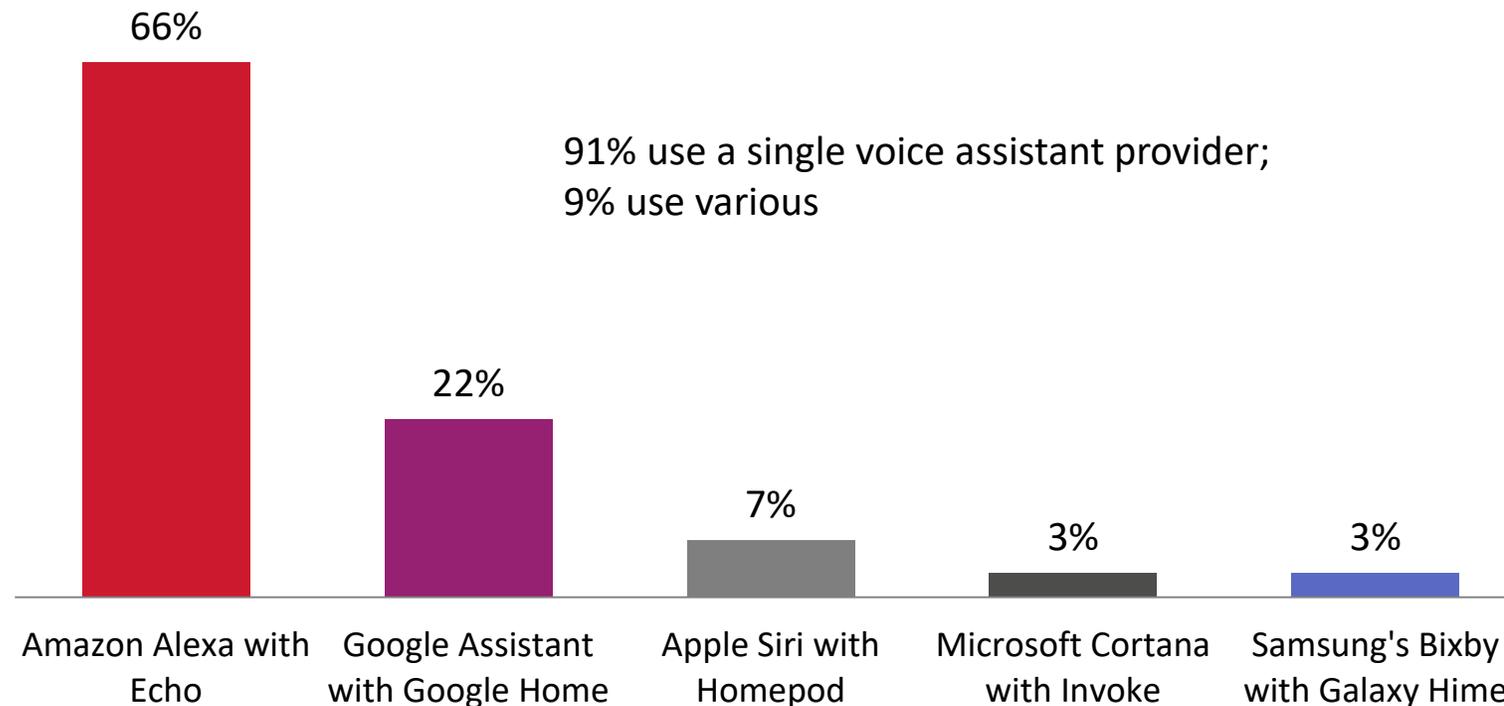
- 49% women and 51% men
- 23% singles, 31% two-person HH, 46% multi-person HH > 45% **families with children**
- 85% employed (74% full-time)
- 91% get along well or get along well with their financial means
- **70% trend affinity** (like to be the first to try something new)

Basis: n=1015 persons who use (at least one) smart speaker with voice assistant in their household.

Alexa is way out in front in the households of the respondents; Google is the only noteworthy competitor

Which voice assistants with smart speaker are used in the household

Prespecified answers



Basis: n =1015 persons who use (at least one) smart speaker with voice assistant in their household.

Surveyed Alexa users more often over 40 years old and living as a couple; Google Home owners tend to be younger and in the family phase

Penetration by age group	Amazon's Alexa with Echo	Google Assistant with Google Home	Share remaining providers
under 30	63%	18%	19%
30 to under 40 years of age	62%	30%	8%
over 40 years	77%	13%	10%

penetration by sex

feminine	64%	24%	12%
masculine	67%	20%	13%

penetration according to HH size

singles (1 person-HH)	66%	23%	11%
couples (2-person-HH)	72%	14%	14%
families (3 and more persons-HH)	61%	27%	12%

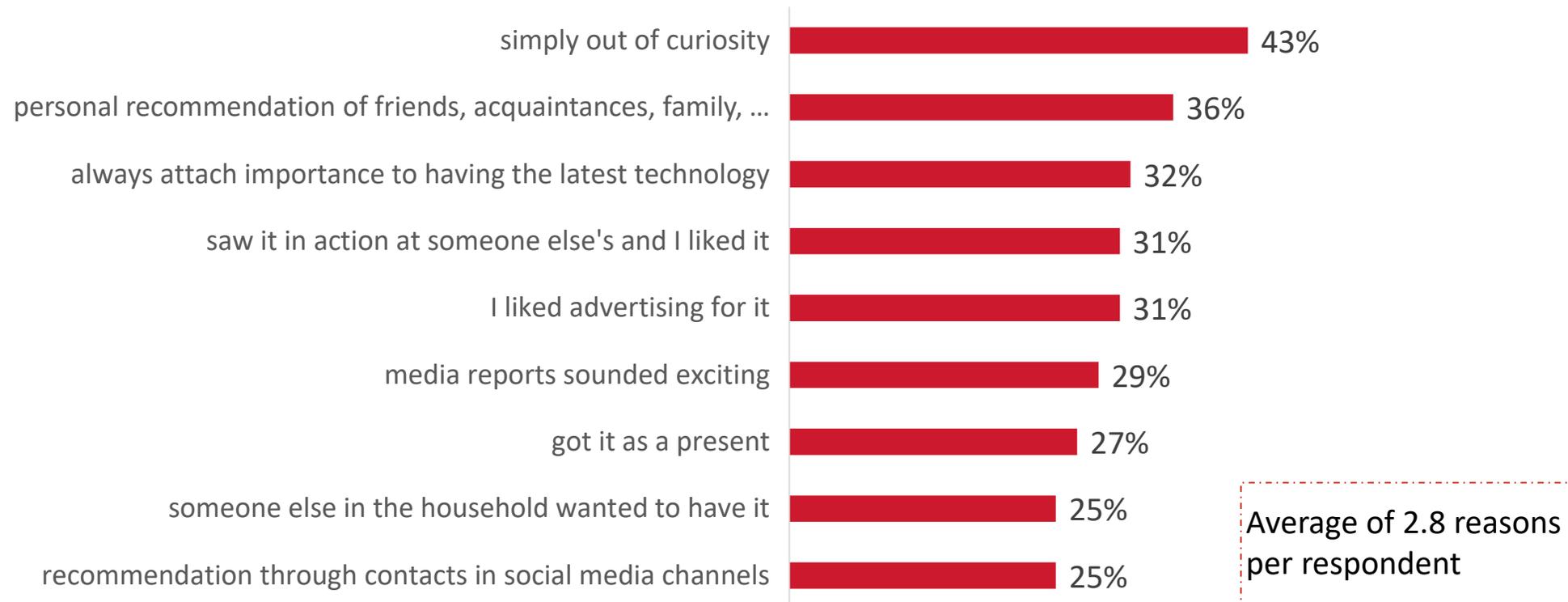
period of ownership	All households	Amazon's Alexa with Echo	Google Assistant with Google Home
less than 6 months	36%	31%	39%
6 months u. less than one year	41%	48%	36%
one year or more	23%	20%	24%
I don't know	1%	1%	1%

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

There are many motives for purchasing Alex & Co.; curiosity and personal recommendations lead the field

Why did you buy smart speaker and voice assistant?

Prespecified statements, multiple choice; basis of respondent = 100%



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in HH (multiple users: for the most frequently used assistant)

4

Chapter 4

Living together with Alexa & Co.

– how does it feel



Living together with Alexa & Co. – how does it feel (1)

- How does it feel once the digital flatmates have moved into one's own four walls is discussed in the following chapter. Since the new device, in contrast to other purchases such as furniture or electrical appliances, communicates with us, it is particularly interesting to learn about the consumers' experience with it.
- The providers of the smart speakers can be satisfied with the answers of the respondents, because enthusiasm and the feeling of commitment prevail. More than 70% of them do not want to do without their smart speaker anymore, almost 80% are excited about the skills time and again and/or would recommend the voice assistant to their friends. However, there are also points of criticism and weaknesses. Around half are disappointed from time to time – whether in view of the difficulties with speech recognition or with regard to applications that do not work as hoped. Nearly 60% even find that the system is not (yet) mature at the end of the day.
- Overall, positive attitudes towards voice assistants predominate, but objections remain. Enthusiasm and criticism exist side by side: the criticism does not only come from the less enthusiastic or disappointed users, but also from the fans. One in two of the sub-group of enthusiasts, for example, complains about errors in speech recognition. Almost as many criticize non-functioning applications. And 58% of the fans think that the systems are generally not yet mature.
- Even the voice – one of the most important features of a voice assistant – is not experienced as perfect by the majority of the interviewed smart speaker owners. Not even half are completely satisfied with it. Among the different answers, the interviewees primarily chose "more feeling": they want a voice that sounds more cheerful and more emotional. This especially holds for the women in the sample who would be pleased about more cheerfulness.

Living together with Alexa & Co. – how does it feel (2)

- This is an interim conclusion: Smart speakers are by no means experienced as perfect, but are nevertheless loved. For suppliers, this means that there is still a lot of room for improvement – and therefore a lot of research and development work to be done. Providers who succeed in scoring points through better functionalities or an emotionally more appealing voice can use it to gain competitive advantages.
- The impact of the new technologies on the household is an important question for research into consumer behavior in this context. In fact, the majority of smart speaker users surveyed noticed remarkable changes in everyday life, some of which even related to emotional and social aspects. However, practical facilitation and entertainment aspects are mentioned first and foremost: The intelligent loudspeaker makes life and everyday routines easier and more comfortable according to a large majority of over 80%, or cheers users up in everyday life. And this apparently works so well that other entertainment

and information channels are partly replaced – at least three quarters of the study participants agree with this statement. Almost as many people find that there is less they keep in mind and they use the voice assistant reminder function instead. And 72% even grant the device a decision-maker role when it comes to music selection. The delegation of purchase decisions to smart speakers has already begun here.

Living together with Alexa & Co. – how does it feel (3)

- Obviously smart speakers' possibilities of communication fascinate users so much that even the smartphone occasionally falls into oblivion. Also, two thirds miss the voice assistant when they are away from home. And more than half have noticed themselves communicating differently with people – the way you talk to the voice assistant.
- Most changes are perceived more confidently by women ("fully true"), while men predominantly only admit a "partial" change.
- In addition to the response options provided, 19% of respondents expressed openly formulated changes. These mainly concern other kinds of practical facilitation, but the study participants also described listening to much more music, finding cooking more relaxed and even perceiving their home as more comfortable and less lonely.

Here are some original quotes as examples:

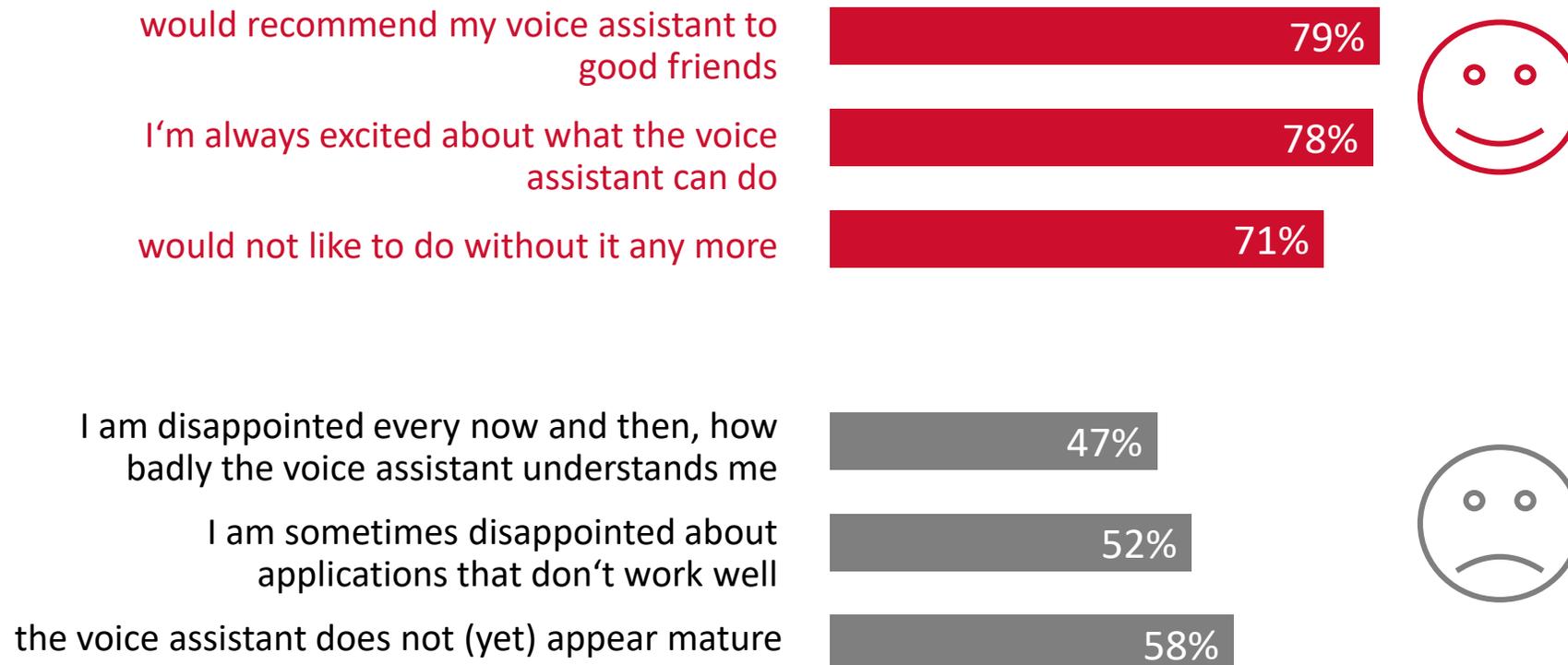


- ✓ *Thanks to the voice assistant, I have now also started cooking because the recipes are very simple and easy to understand.*
- ✓ *Every day before I get dressed, I ask what the weather will be like, which saves me time. I always know what to wear now.*
- ✓ *I don't need a clock in the house, no scheduler and don't have to worry about which song I want to hear right now!*
- ✓ *Yes, me and my best friend now listen to music together every day after university, or talk to our voice assistant to create funny situations.*
- ✓ *It's become more comfortable, because it interacts with me. I don't feel so alone anymore.*
- ✓ *As a wheelchair user I have gained new freedom as I can now comfortably control all electronic devices, the lights and the heating by voice.*



Enthusiasm and attachment are the predominant feelings, but weaknesses are also seen

Prespecified statements; top2 box of 4-stage-scale (completely agree, somewhat agree)



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Mixed feelings: Enthusiasm and criticism exist side by side; the majority of fans also take a critical view

Prespecified statements; top2 box from 4-stage-scale (completely agree, somewhat agree)



subgroup enthusiasts

(top2 box – I'm always excited what the voice assistant can do)

subgroup less/not enthusiastic

(bottom2 box – I'm always excited about what the voice assistant can do)

<p>I'm disappointed every now and then how badly the voice assistant understands me -> 52%</p>	<p>I'm disappointed every now and then how badly the voice assistant understands me -> 50%</p>
<p>I am always disappointed about applications, that don't work well -> 48%</p>	<p>I am always disappointed about applications, that don't work well -> 42%</p>
<p>The voice assistant does not (yet) appear mature -> 58%</p>	<p>The voice assistant does not (yet) appear mature -> 55%</p>

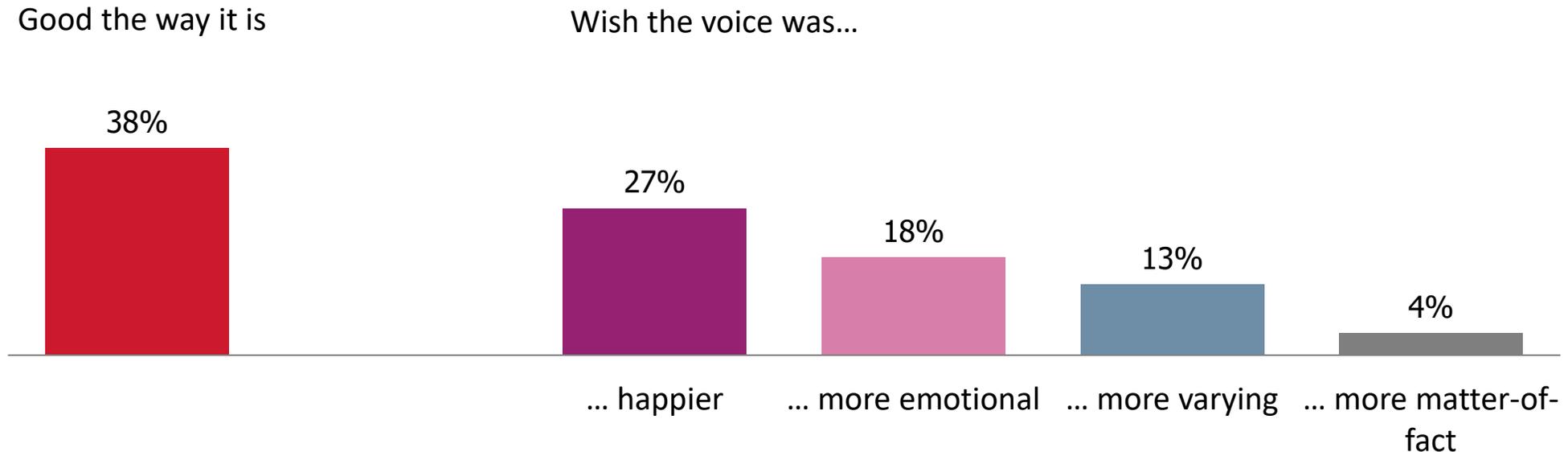
Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Less than half of smart speaker owners are completely satisfied with their voice assistant's voice

– here is potential for the providers to distinguish themselves

Would you like the voice of your voice assistant to be different from what it is now?

Prespecified answers, single choice

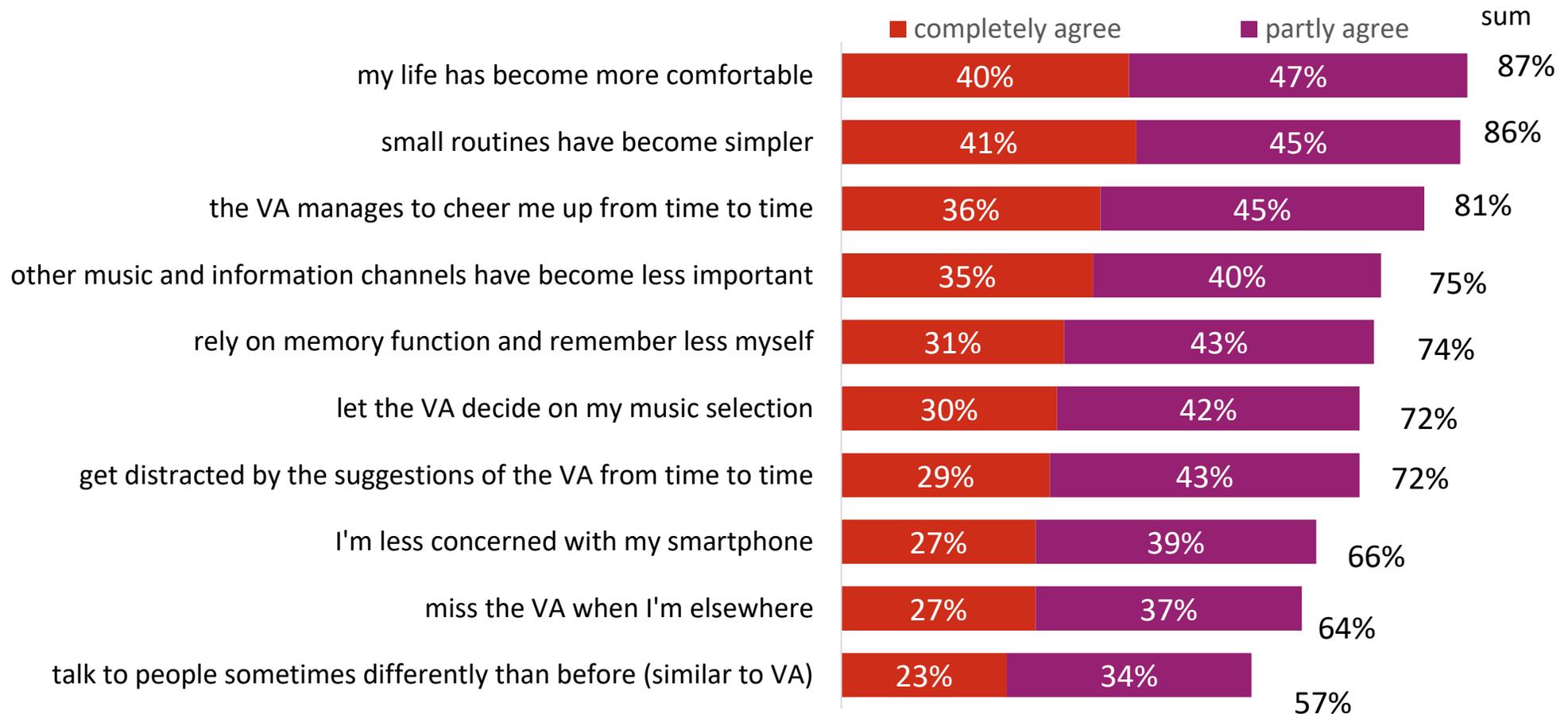


Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

For the majority of the users surveyed, the smart speaker has brought about noticeable changes in everyday life

Now we would like to know what has changed in everyday life through the use of smart speakers.

Prespecified statements; top2 box of 3-stage-scale



Note: VA stands (for space reasons) for voice assistant

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

5

Chapter 5

Digital entertainers and consultants



Digital entertainers and consultants (1)

- The diversity of demands on the digital cohabitants becomes clear when one asks about the roles attributed to them. On average, each respondent named three different roles, with no overly frequent "standard" combinations. This variety of mentions once again makes it clear that intelligent loudspeakers are not perceived one-dimensionally, but fulfil practical (functional) tasks as well as emotional needs. Explicitly decision-relevant roles such as counsellor and everyday manager were mentioned by one-third of the interviewees, respectively, or 52% in sum (net sum without double entries). For just under a third of respondents, the relationship is apparently really emotional: they chose (among other roles) the term friend.
- When it comes to specific applications/skills, intelligent speakers are most often used in the role of entertainers with movies and music. A good half of the respondents use these services frequently, a third do so from time to time, and only just under 20% have tried these applications only once or never. Simple information questions such as for the current weather report, news or sports results are the second most frequently mentioned. Otherwise, smart speakers offer fun and games with jokes, quiz questions and the like, but also act as fast information channels that fill knowledge gaps, provide practical information about nearby shops (opening hours, nearest branch etc.) or even report on the traffic situation on personal routes. The smart speaker is also used to entertain other family members or visitors: Half of the study participants stated that they occasionally or frequently humor children with the device.

Digital entertainers and consultants (2)

- As already mentioned, the new technologies have provided practical facilitation for households. In concrete terms, they are used for the following everyday tasks – with various decision-relevant and interactive aspects. A total of 75% use Alexa & Co. frequently or occasionally to remind them of personal appointments, 66% appreciate digital help with cooking and baking and 65% each seek support occasionally or regularly with to-do lists and shopping lists. Smart-Home applications such as controlling the air conditioning, lights or heating are used by 63%, the same proportion applies to price queries. And as much as 51% order products via smart speaker from time to time.
- On the basis of these skills and the intensity of their use, three groups can be distinguished (using *k*-means cluster analysis), which also differ in sociodemographic terms. The so-called heavy users are more often female, live in families and are between 30 and 40 years old, medium users are more often male, in couple relationships and under 30 years old. Light users are also more frequently male, but over 40 years old and often live in a family. The heavy users, by the way, are not users with longer experience. On the contrary, they obviously purchased their digital helper more frequently than the other two groups only in the last half year before the survey. So is the potential for success of new skills primarily in the hands of new buyers, who also frequently have devices with screens and whose curiosity for their digital roommates is greatest shortly after the purchase?

Digital entertainers and consultants (3)

- The group of light users apparently only uses simple "pull services": they are interested in entertainment and information (from the Internet), they do not get more involved with their digital roommates. Medium users, on the other hand, allow smart speakers much more "participation" in their privacy. Although the entertainment and information level matters for them as well, the role as personal assistant is much more important. Finally, heavy users make extensive use of the broad spectrum of different skills. Although not everyone uses everything to the same extent, the skills are frequently used in various combinations by 36 to 44% of heavy users each. Practical and interactive tasks are as much in demand as entertainment.
- Not only with regard to sociodemography, but also with regard to decision mentality and trend affinity, the three user types show clear differences:

Particularly striking in the group of heavy users is the high proportion of those who are open to the advice of others. If this openness applies not only to people, but also to digital guides, completely new demands are made on brands and retailers. They must then quickly learn to understand the laws of algorithms and harness them for their own advantage – and they need to come to terms with the new gatekeepers. The providers of smart speakers should also keep heavy users in focus. After all, many of them are interested in new trends and developments and like to be among the first to try something new. They could thus be the ones who continue to drive the smart devices market forward with their enthusiasm – but also the ones who always expect something new from the developers. And this gives them the potential to make important suggestions and contributions to further development if the manufacturers involve them in product development.

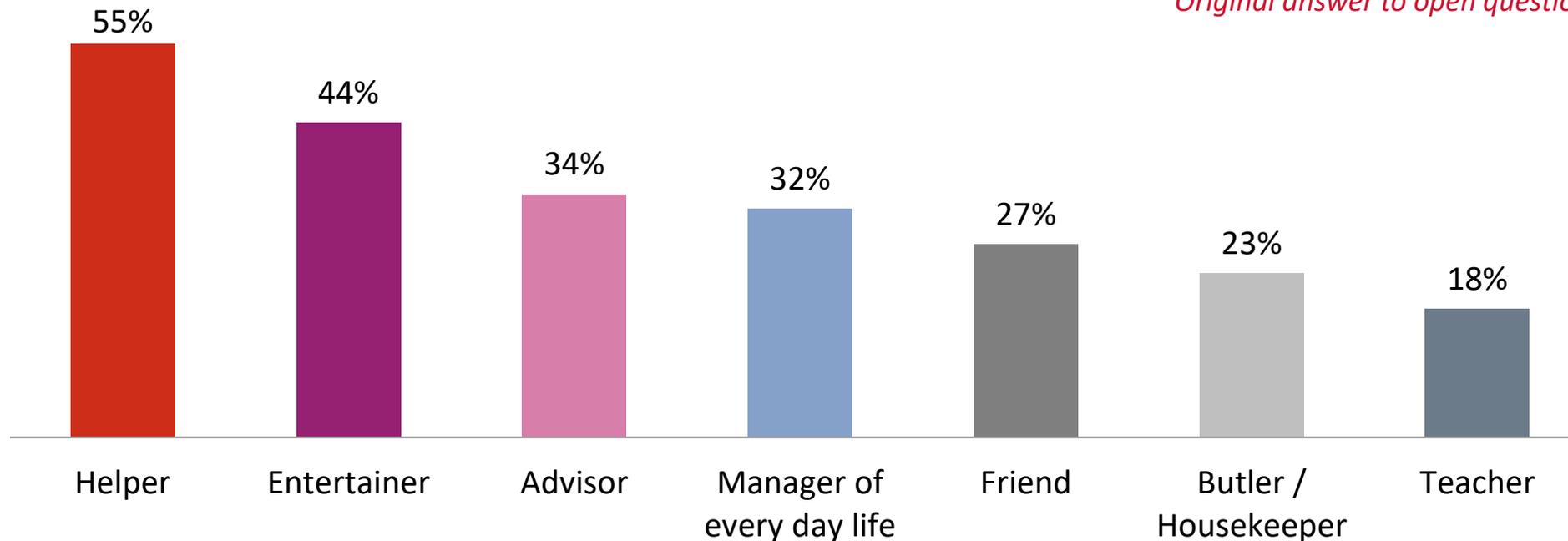
Various roles for the voice assistant: fulfilling both practical (functional) tasks and emotional needs

How would you describe the role of your voice assistant?

Prespecified answers, multiple choice; average 2.6 responses per respondent

„... just a little friend who helps with the house, remembers you and has fun with you. I would wish that the little one would show different emotions and recognize those of others and respond to them.“

Original answer to open question



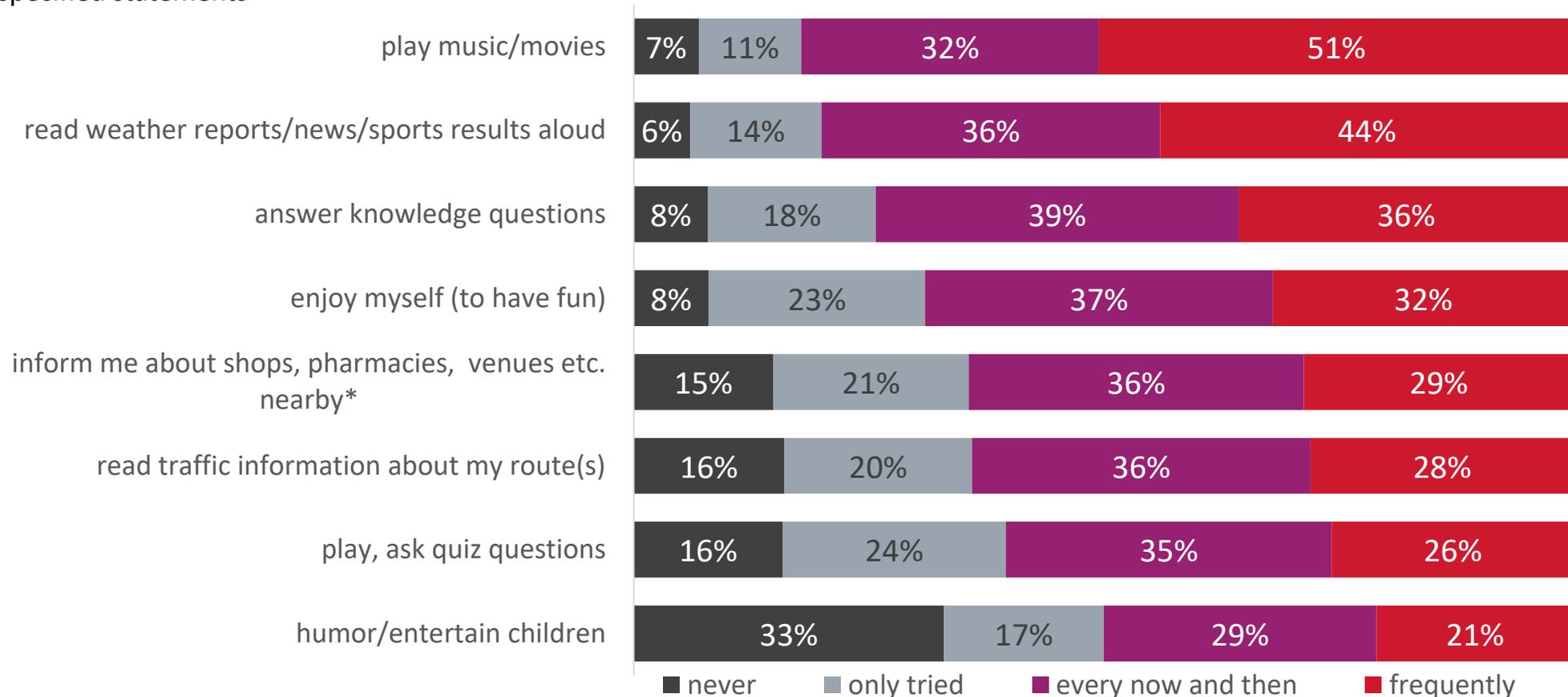
Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

For information: servant/maid, landlord 15% each

Smart speakers in the role of entertainers: They offer fun and games, but also act as information channels

What do you let your smart speaker/voice assistant do for you?

Prespecified statements



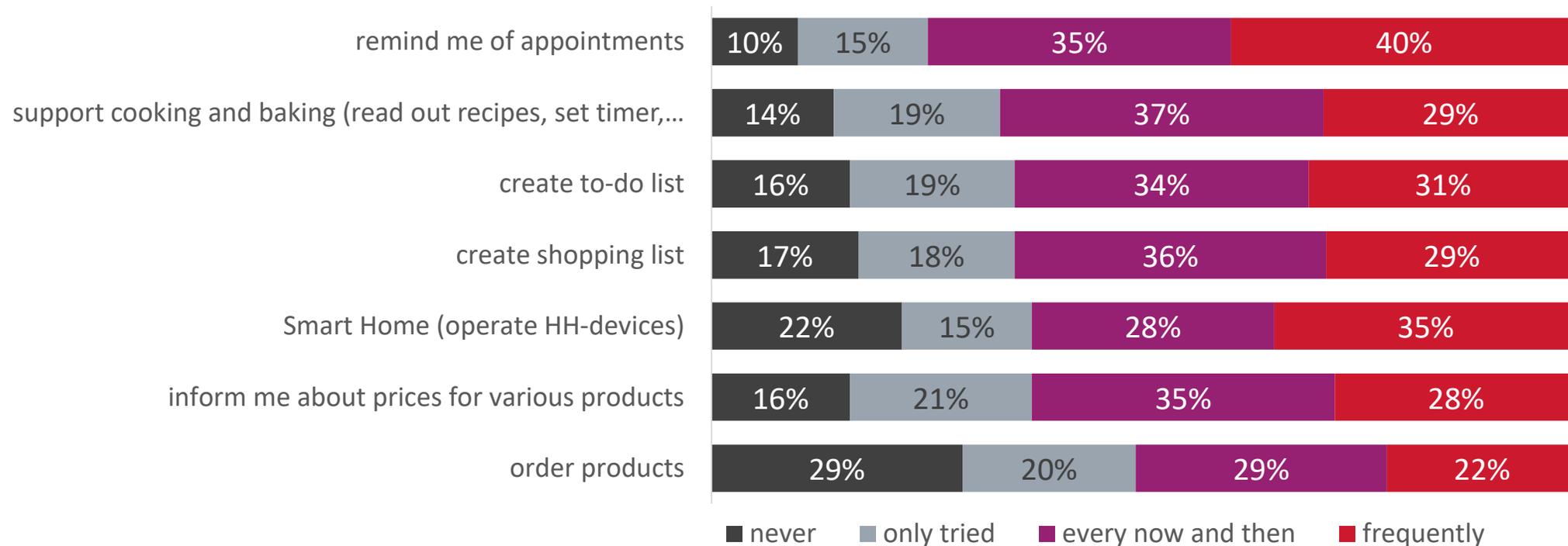
Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

*e.g. opening hours, nearest branch

Smart speakers are practical supporters in everyday life – with various decision-relevant tasks

What do you let your smart speaker/voice assistant do for you?

Prespecified statements



Basis: n=1015 persons using (at least one smart speaker with voice assistant in the household)

If three user groups are formed on the basis of the skills used, these also differ in terms of sociodemographics

Clustering (*k*-means) of the sample into three groups on the basis of the skills used:

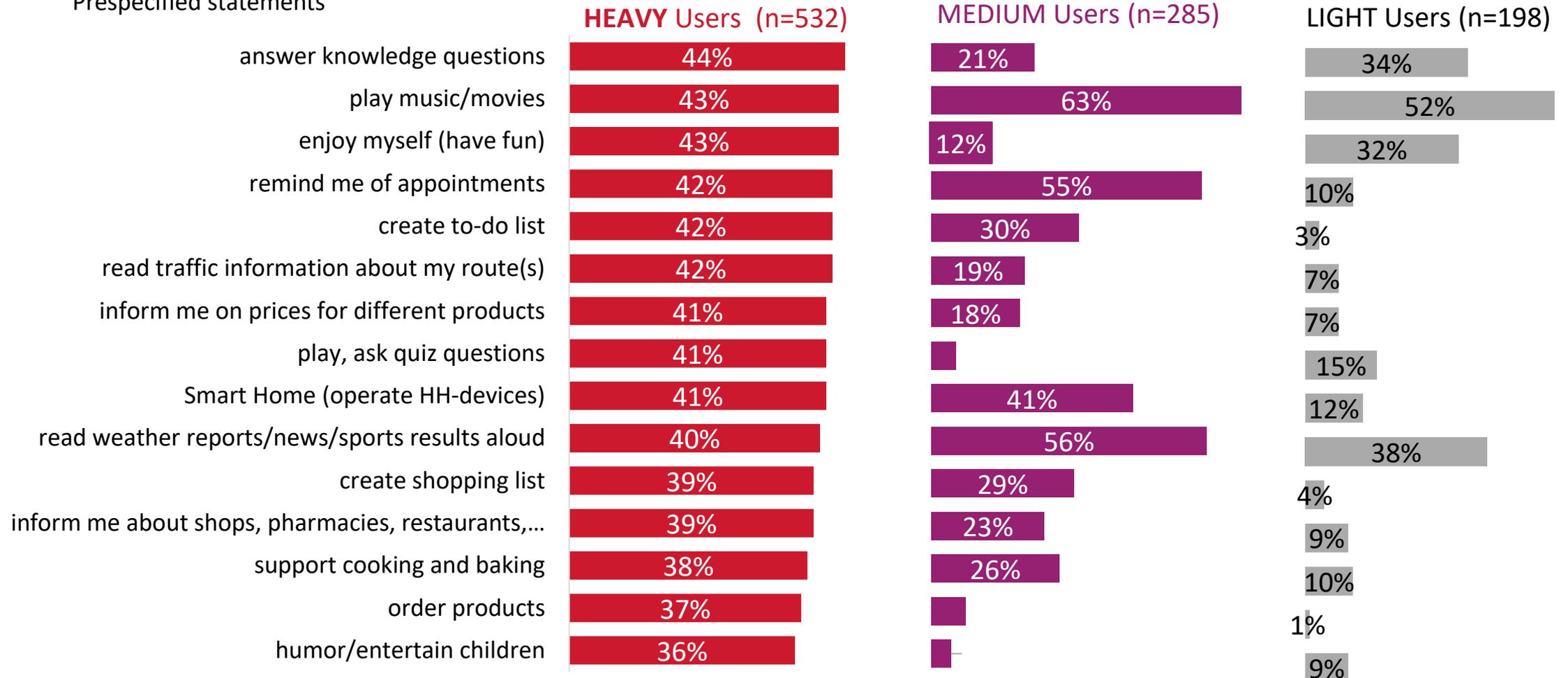
	HEAVY Users (n=532 = 52% of the sample)		MEDIUM Users (n=285 = 28% of the sample)		LIGHT Users (n=198 = 20% of the sample)	
gender	female	53%	female	44%	female	46%
	male	47%	male	56%	male	7%
HH size	singles	25%	singles	23%	singles	18%
	couples	26%	couples	39%	couples	32%
	families	49%	families	38%	families	49%
age	U30	35%	U30	40%	U30	31%
	30-40	52%	30-40	31%	30-40	30%
	O40	14%	O40	29%	O40	38%
length of smart speaker ownership	less than 6 months	41%	less than 6 months	29%	less than 6 months	30%
	over 6 months	59%	over 6 months	71%	over 6 months	70%

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Heavy users make extensive use of the broad spectrum of different skills; light users stay at a distance

What do you let your smart speaker/voice assistant do for you?

Prespecified statements



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Decision mentality and trend affinity of user types show clear differences

Prespecified statements

	HEAVY Users	MEDIUM Users	LIGHT Users
When buying products, I gladly take advice from others.	62%	31%	25%
When buying products, I listen to tips and advice from others and include them in my considerations. I don't let me be talked into it.	34%	60%	60%
When buying products I am not particularly interested in the tips of others. I form my own opinion and stick to it.	5%	8%	15%
I am very interested in new trends and developments. I like to be one of the first to try something new.	74%	67%	62%
I am not particularly interested in new trends and developments. I wait and see if anything works for others.	22%	30%	32%
I don't care about new trends and developments and stick to the tried and tested.	4%	3%	6%

6

Chapter 6

Shopping with smart speakers



Shopping with smart speakers (1)

- Beyond information, entertainment or everyday management, smart speakers also fulfil the function of a quick shopping aid. Half of the smart speaker owners surveyed at least occasionally order products via their devices, and a good 20% even do so frequently. Among the regular shoppers, the above-average number of women and singles between 30 and 40 is striking. In contrast, the proportion of men and couples is particularly high among occasional shoppers. Both buyer groups are united by the above-average ownership of display devices that allow them to see proposed products as well. While on average 60% of respondents own at least one smart speaker with a display, the percentage is significantly higher for both experienced and occasional buyers (87% and 72%, respectively).
- The implications and accompanying effects of shopping with the new technology are assessed differently by the

subgroups. The respondents were presented with contradictory statements on this topic. The comparison of answers from frequent versus occasional shoppers is particularly informative. The following applies here: Those who order frequently via voice assistant evaluate the effects differently from those who use the technology only occasionally. For example, two thirds of casual shoppers find that voice assistant suggestions make purchasing decisions easier; not even half of the frequent shoppers think so. The latter are also much more sceptical about a possible increase in the significance of branded products or increasing opportunities for unknown brands through ordering via smart speaker. In addition, they are less likely than casual shoppers to say that voice assistant shopping encourages them to test new products.



Shopping with smart speakers (2)

One possible reason for the differences is that frequent shoppers have already developed shopping routines when shopping via voice assistant and move along familiar paths, while for casual shoppers this method is still new and exciting and in their search requests they may come across products they don't know more often than routine shoppers. When it comes to prices, the most experienced buyers in particular think that the new technology can save money. They also most often say that the new way of shopping is more fun (67%).

- Overall, people are apparently not yet so sure what the consequences of the new technologies will be for the consumer world; mostly, there are not clear majorities among respondents. For example, 49% find that shopping via smart speakers is more fun – 51% assume the opposite. 49% also see better opportunities for unknown brands, 51% expect the opposite development. There is only one point where there is more clarity.

A majority of 60% agree with the statement that voice assistant suggestions facilitate purchase decisions; 40% agree that they are made more difficult.

- The interviewees agree considerably more in their criticism of the currently possible purchasing and ordering procedures. Providers of voice assistant systems can still optimize some things in the eyes of the users – in particular according to buyers with experience: 8 out of 10 frequent buyers see potential for improvement. A good one in two would like ratings from other buyers and more product suggestions. The experienced also want better speech recognition and comprehension when ordering, simplified navigation and the assurance of not paying too much for the purchased product.

Shopping with smart speakers (3)

- There are various reasons for having not yet gained any experience with orders via smart speaker: The habit of shopping on the Internet via PC or notebook, where you can generally see products and not just hear descriptions, are important aspects for non-users. And: One of the most common reasons for refusal is the fear of accidentally ordering something wrong. Apparently, there is a concern that the level of control over the purchasing process is lower than with the usual shopping channels.
- In practice, it is currently not (yet) possible in Germany to purchase every product and/or from any dealer via voice assistant. To find out how great the willingness would be to include digital household helpers in purchasing processes, all survey participants were encouraged to think about the following scenario: "Imagine the following situation: You need sugar, flour and rice. Your voice assistant can help you with your purchase. How do you behave? Please select (from 5 options) the answer that is most likely for you." The same principle was applied to the purchase of headphones.
- The result: more than half of smart speaker owners would be willing to delegate part of the decision to technology when purchasing packaged staple foods. For example, a quarter of the respondents could imagine letting the voice assistant create a suggestion list with different offers; one in five could imagine having the voice assistant determine what to buy, provided that certain conditions such as maximum prices or brands are preset by the user. And a good one in ten can become comfortable with the idea of letting the voice assistant act completely independently. Another quarter would order via the voice assistant – but only pre-defined products. Only 19% do not want to use the digital helper at all.

Shopping with smart speakers (4)

- When purchasing headphones, users would more frequently use the voice assistant's list of suggestions and select a suitable model from it. Otherwise, the distribution of responses is quite similar to that for the purchase of packaged staple foods. All in all, there is also a high willingness here to actively involve voice assistants in the decision-making process.
- For manufacturers and retailers, the challenges that have already arisen from increased online shopping are thus intensifying: So far, the bulk of marketing budgets has ultimately been focused on human attention and interest. But what must be done in the future to get brands and products into the – even shorter – suggestion lists of voice assistants, if these were not explicitly named by consumers? And the research question follows: To what extent would or will consumers in the future rely on the advice and decision support of digital assistants for other, perhaps much more expensive products?
- It already seems clear that the more people use their smart

speakers with voice assistant in their everyday lives, the more responsibility for their purchasing decisions they will hand over. About two thirds of the heavy users can envision to be supported when buying basic food or headphones – be it in the form of suggestion lists or by letting the voice assistant place orders more or less independently. Thus it is reasonable to assume that with the increasing spread of speech-controlled digital assistants, more and more consumer decisions are actually influenced by them.

Shopping with smart speakers (5)

- But it is not without dispute that the new technology will prevail: "Sorry, Alexa: Voice Shopping Is Mainly Hype – For Now" was the headline of an article by Steve Dennis in Forbes magazine on August 18, 2018. In it the author explains: "First, there is an aspect of the technology that is solving a problem I guess relatively few customers have. Shopping on Amazon (and most other sites) via a mobile device, laptop or desktop is pretty easy, fast and well optimized. At the margin, in some instances, Alexa can save a little time and solve an immediate need. But it's not like it's a step function in improved convenience. Second, voice-activated commerce, at least as it's currently delivered, can involve significant experiential compromises. While I have not seen specific data, my own personal and industry experience suggests that visual cues are central to many purchases, and the ability to see options—and navigate through them—is highly useful for many purchase occasions. In these situations 'regular' online

shopping is clearly superior." In addition to the lack of relevance (solves a problem that nobody actually has) and the importance of visual impressions/stimuli when shopping, he cites the limited product choice as a third argument. (with "... a bit of a bias towards Amazon's own private brands") and fourth, consumer concerns about possible privacy risks. All in all he comes to the following conclusion: "As I don't possess a working crystal ball, I'm reluctant to predict that voice-activated commerce won't someday be retail's next big thing. Right now, however, it seems much more of a cool technology still in search of addressing a real customer need at scale."

- The results of our study, however, do not speak at all in favor of this cautious forecast. In addition, the now common option of purchasing a speaker with a display makes the second argument appear somewhat outdated.

Shopping with smart speakers (6)

- As we have already seen, the majority of the smart speaker owners in our sample are very inclined to be supported by their devices for certain purchases. The interest in shopping via smart speaker is even greater if users are asked to look five years into their personal future, without specifying particular product groups. Having orders completely organised by a voice assistant in five years is by no means a utopian scenario for the vast majority of respondents. Heavy users in particular are comfortable with this vision. Half of them answered the question with "yes, sure", on average 37% of all smart speaker owners surveyed said yes. A further 37% of heavy users consider this option at least probable, across all respondents this value is 40%. Conversely, this means that only 23% of all interview participants and just 9% of heavy users exclude this possibility for themselves or are unsure about it.

- The almost 80% who can imagine this scenario were then

specifically asked about some selected, relatively broad product groups. Of course it makes a difference whether one thinks of fresh fruit or packed staple food when asked about groceries, or of a winter coat or underpants when asked about clothing. All in all, however, the ranking is reasonable: The potential for purchasing via voice assistant is assessed as noticeably higher for entertainment media and food than for clothing or drugstore articles.

Shopping with smart speakers (7)

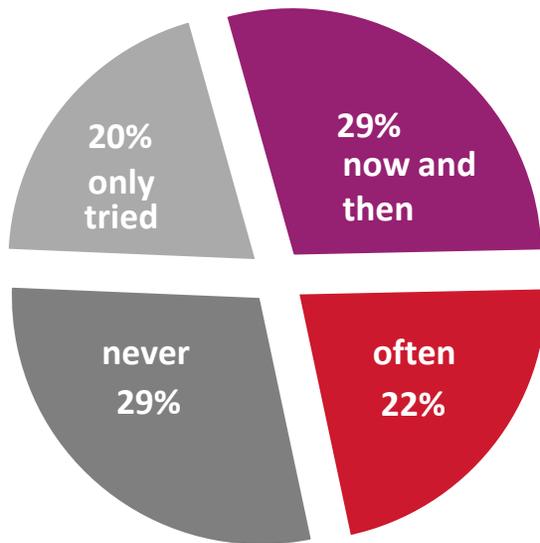
- The bottom line is that ordering is obviously not an option for every smart speaker user in every product group. In addition to the need for haptic and other sensory impressions, one reason for this could also be the desire for real shopping experiences – an aspect that will continue to lure people into stationary shops in the future. However, since by no means every shopping trip is perceived as a pleasant or stimulating activity, but sometimes also as an annoying duty and boring routine, people also like to be given a digital helping hand. And in the long run, speaking instead of typing could not only be perceived as more natural, but also more comfortable – because it is also possible, for example, with a child on your arm or full hands.
- Simply naming products and being able to order them in this way is no longer pie in the sky. The answers to the open question of what respondents would wish from software developers with regard to voice assistants also show that many daily tasks are perceived as annoying and that people would like to be supported. In a few years' time, the voice assistant should not only be able to communicate with household appliances and order missing items, but will also automatically pay bills, search for various bargains and then order them, or book flights at the best price. You will find some verbatim quotes on pages 56 to 58.

Shopping with smart speaker (8)

- The potential of voice assistants is of course not limited to support for the purchase of tangible products. In the future, a wide range of services could also be provided by intelligent devices. However, the attractiveness varies depending on the service. Ordering meals, making appointments or organizing a taxi are tasks that a clear majority of smart speaker owners would leave to the voice assistant. Almost 60% of those surveyed still find it quite attractive to receive a suggestion list when deciding on service providers such as tax consultants, lawyers or doctors. When it comes to very personal, sensitive data, however, the numbers decline. Transferring money or having medical diagnoses made on the basis of information entered is at present less attractive/unattractive for half of the users.

Half of the smart speaker owners surveyed also order products at least once in a while; a good 20 percent even do this frequently

Ordering products with smart speaker (all respondents):



	All respondents	frequently	every now and then	only tried out	never
female	49%	62%	46%	41%	48%
male	51%	37%	54%	58%	52%
singles	23%	31%	20%	21%	22%
couples	31%	22%	32%	33%	35%
families	46%	47%	48%	46%	43%
U30	36%	27%	36%	43%	37%
30-40 years	41%	63%	43%	34%	29%
O40	22%	10%	21%	23%	34%
Heavy Users	52%	90%	73%	43%	10%
Medium Users	28%	9%	24%	37%	40%
Light Users	20%	1%	3%	20%	50%
Device with display	60%	87%	72%	58%	28%
No display*	37%	12%	27%	39%	65%

*Rest to 100% = n.a.

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Experienced purchasers using smart speakers appreciate the effects significantly different from occasional and non-buyers

Prespecified statements (semantic differential/polarity profiles)

Subgroups based on stated frequency of product ordering per VA

By ordering via smart speaker and voice assistant ...	Subgroups based on stated frequency of product ordering per VA			
	frequently	every now and then	only tried out	never
... decisions are facilitated by proposals from the VA (versus ... complicated)	47%	66%	58%	64%
... branded products are gaining in importance (versus ... lose ...)	47%	57%	55%	60%
... one tries out new products more often (versus ...less often ...)	46%	59%	57%	57%
... one buys cheaper (versus ... more expensive)	64%	55%	46%	38%
... less known brands have better chances (versus ... worse ...)	39%	57%	52%	46%
... shopping is more fun (versus ... the fun of ... is lost)	67%	53%	47%	32%

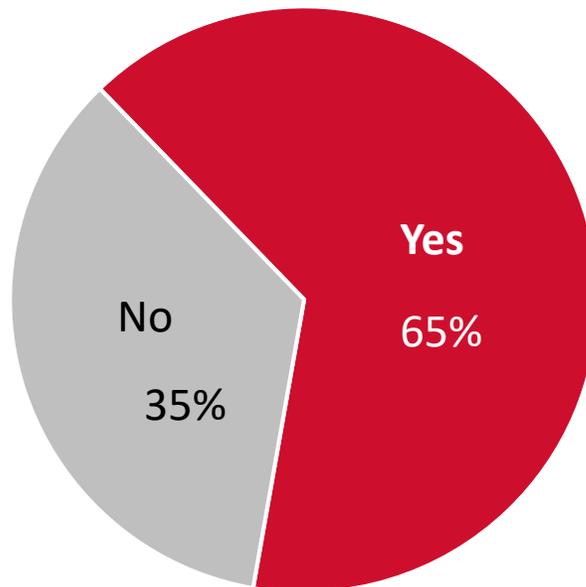
		All respondents			
decisions facilitated	60%	40%	decisions more complicated		
brands gain more often	55%	45%	brands lose less often		
new products	55%	45%	new products		
cheaper	50%	50%	more expensive		
better chances	49%	51%	worse chances		
more fun	49%	51%	less fun		

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Room for improvement when ordering products via smart speaker and voice assistant is great

Subgroup: Already ordered (at least tried out); =71% of all respondents; prespecified answers; multiple choice

Do you see need for improvement?



Basis: n=718 persons, who have at least already tried to order

- I lack the certainty that the best value for money will be suggested to me. (45%)*
- the proposed products are (often) inappropriate (41%)*
- the voice assistant should better understand what products I am looking for (44%)*
- I miss the reviews from other buyers (43%)*
- the number of product proposals should be greater (44%)*
- I find it difficult to navigate and/or search by voice alone (43%)*
- there should be more detailed information about individual products (40%)*

Basis: n= 468 persons, who have tried to order and see need for improvement

8 out of 10 frequent buyers see need for improvement when ordering products via smart speaker and voice assistant

Subgroup: Already ordered (at least tried out); =71% of all respondents; prespecified statements; multiple choice

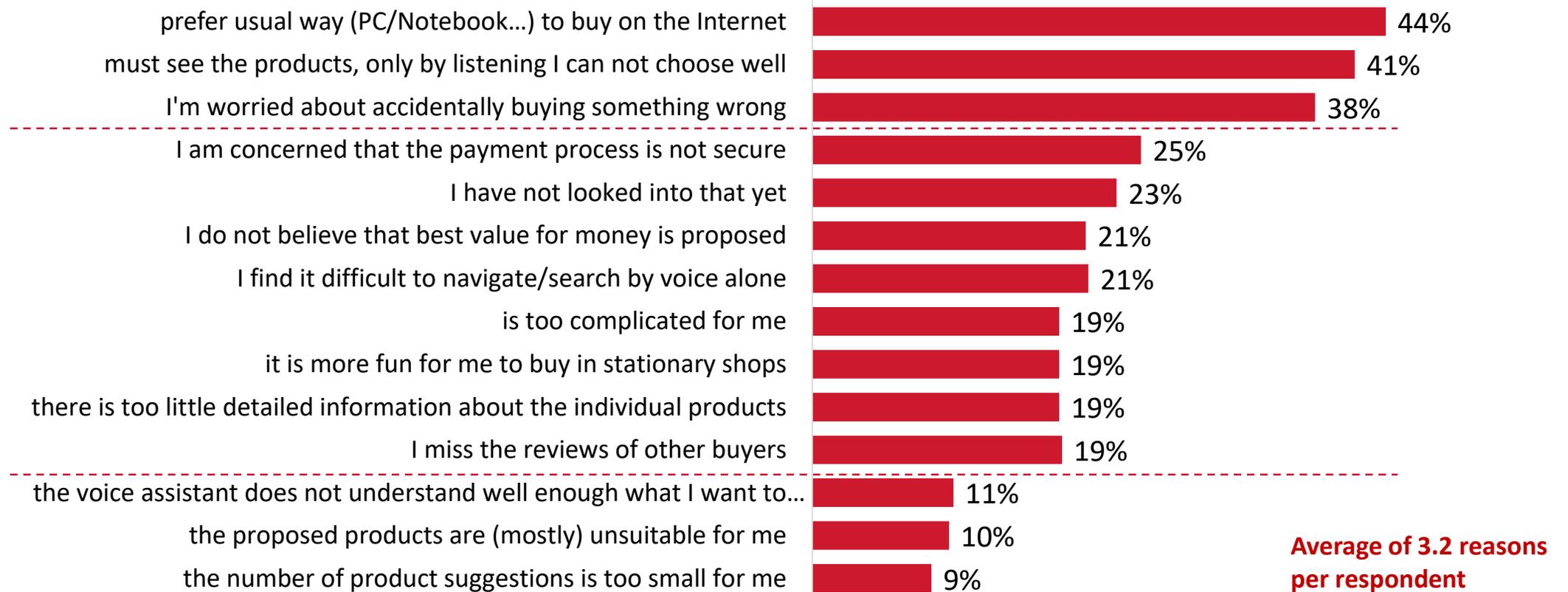
Subgroups purchasing experience
(product order per VA)

	All buyers	frequently	every now and then	only tried
Need for improvement? Yes!	65%	81%	58%	59%
The following:				
I lack the certainty that the best value for money will be suggested to me.	45%	51%	45%	36%
the voice assistant should better understand what products I am looking for	44%	52%	43%	35%
the number of product proposals should be greater	44%	55%	40%	34%
I miss the reviews from other buyers	43%	55%	39%	30%
I find it difficult to navigate and/or search by voice alone	43%	54%	37%	34%
the proposed products are (often) inappropriate	41%	46%	43%	31%
there should be more detailed information about the individual products	40%	42%	44%	29%

Basis: n=718 persons who have at least already tried to order or 468 persons who have tried to order and see need for improvement

The fear of accidentally ordering the wrong thing is one of the most common reasons not to buy products via smart speaker

Subgroup: Never ordered (not even tried); = 29% of respondents, prespecified statements; multiple choice

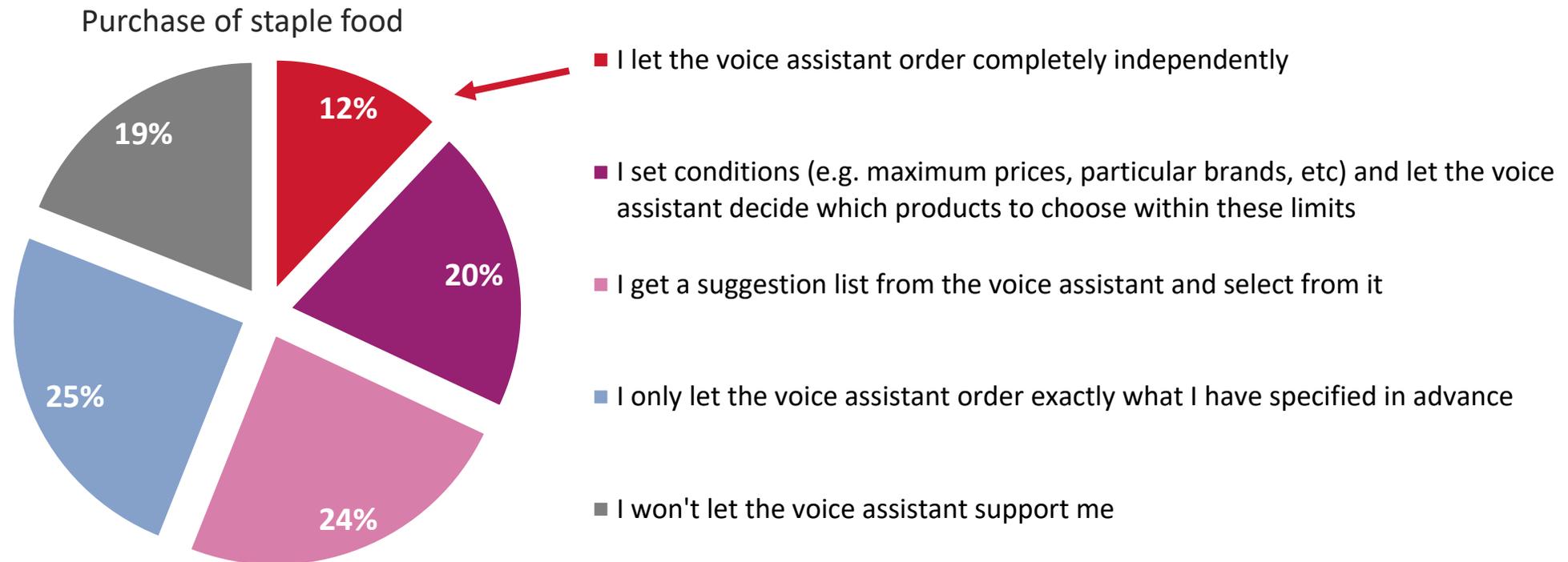


Basis: n=297 persons who have never tried to order

More than half of smart speaker owners surveyed would be willing to delegate part of the decision when buying staple food

Now imagine the following situation: You need sugar, flour and rice. Your voice assistant can help you with your purchase. How do you behave?

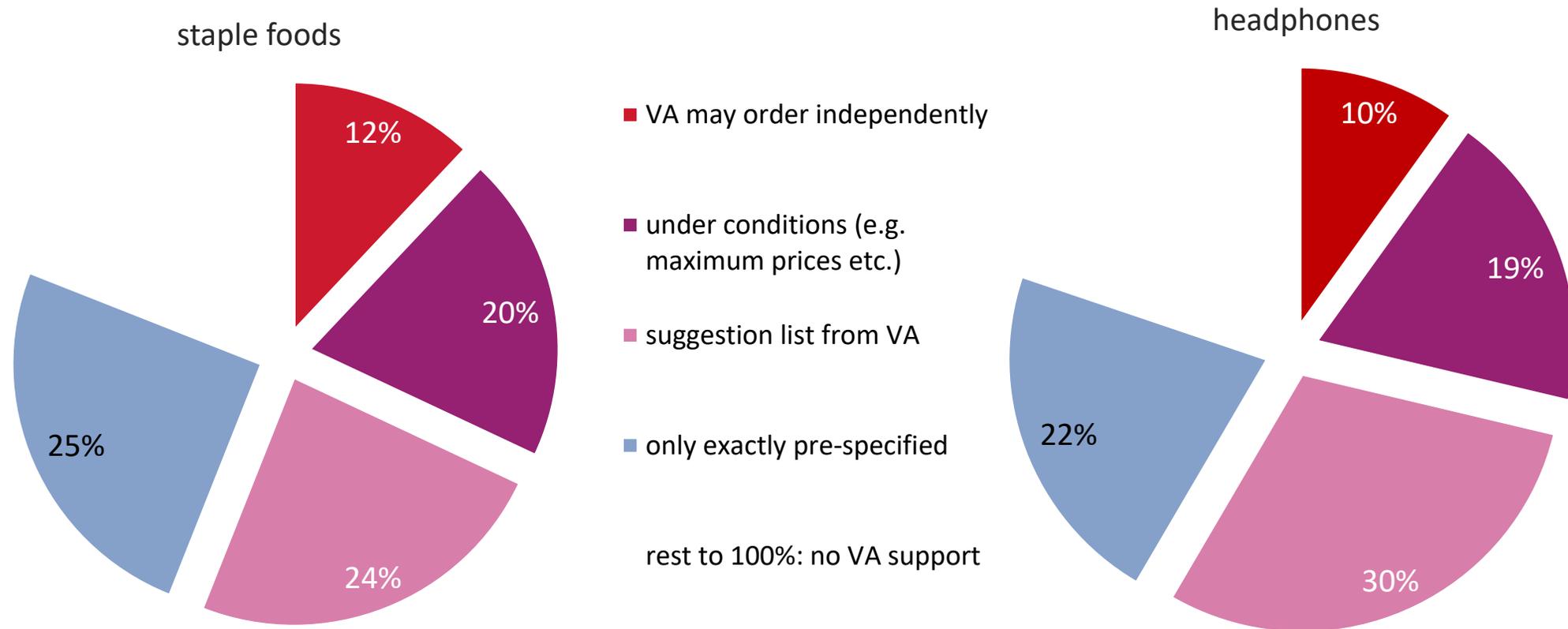
Please choose from the 5 different possibilities the one that **is most likely** for you personally.



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

The willingness to be supported when buying headphones would be similar to that of staple foods

Imagine the following situation: Your voice assistant can help you < with the purchase >. What is your **most likely** behavior?
 Prespecified answers



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Heavy users would hand over significantly more responsibility for purchasing decisions to the voice assistant than moderate smart speaker owners

Imagine the following situation: Your voice assistant can help you < with the purchase>. What is your **most likely** behavior?
 Prespecified answers

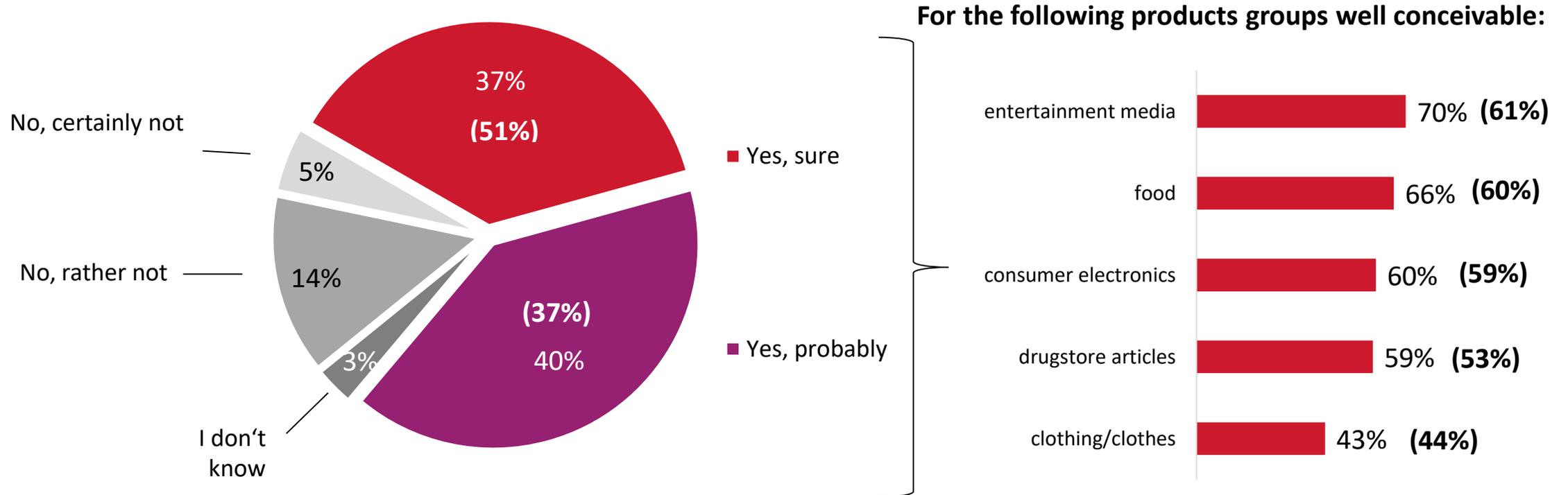
	staple foods				headphones			
	All respondents	Heavy Users	Medium Users	Light Users	All respondents	Heavy Users	Medium Users	Light Users
VA may order independently	12%	19%	5%	5%	10%	15%	4%	4%
under conditions (e.g. maximum prices etc.)	20%	24%	18%	16%	19%	21%	17%	13%
suggestion list from VA	24%	23%	32%	17%	30%	25%	37%	32%
only exactly pre-specified	25%	21%	31%	27%	22%	24%	24%	14%
no VA support	19%	14%	15%	36%	19%	15%	18%	36%

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Let the voice assistant do the shopping: No utopia for smart speaker owners; this is especially true for heavy users

If you are thinking 5 years into the future, can you imagine having some of your regular purchases/orders organised completely by a voice assistant?

Prespecified answers; in parantheses: Results Heavy Users



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Wishes for the voice assistant: Communicate with other devices and independently organize tiresome routines

Original quotes (some excerpts) from open question on future wishes
(spelling mistakes and punctuation corrected)

”
Purchase planning /
automatic re-ordering
“

"Communicate independently with household appliances such as refrigerators and place orders independently according to pre-defined rules."

"That the smart speaker itself places orders and buys the products that have run out of stock in the household or need to be replenished. Invoices are settled automatically."

"... connect with the contents of my refrigerator or kitchen cupboard. The smart speaker can then reorder on its own."

"That Aldi or Lidl, for example, have their own where I can order from the whole range. And that it remembers what I buy and then adjusts the shopping lists for each store."

"Determine the consumption of daily things and always and automatically reorder. E.g. there are approx. 4l milk per week consumed and if there is less than 1l it orders automatically."

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Wishes for the voice assistant: 'Thinking along'

Original quotes (some excerpts) from open question on future wishes
(spelling mistakes and punctuation corrected)

“
‘Thinking along’
(independent recognition of
requirements)
”

"Recognize and continue my thoughts."

"Shopping, but before I know I need it."

"That it knows on its own what I want
and need."

"Anticipating orders for me."

"I'd like a personal assistant to do everything for
me on request and to know exactly what I want."

"Develop travel suggestions for me according to my
other preferences and the ability to book through
Alexa."

"Plan my holiday and find a holiday destination
that suits me and suggest the best offers including
flight and transfer."

"Tell me what I forgot..."

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Wishes for the voice assistant: Help save money

Original quotes (some excerpts) from an open question on future wishes
(spelling mistakes and punctuation corrected)



"... find bargains and recommend them independently
(groceries, household goods, drugstore items)"

"offers from local grocers read aloud..."

"...monitoring power consumption, etc.,
booking flights at the best price."

"find suitable leisure activities such as leisure
parks, etc.; find offers from various grocery
stores..."

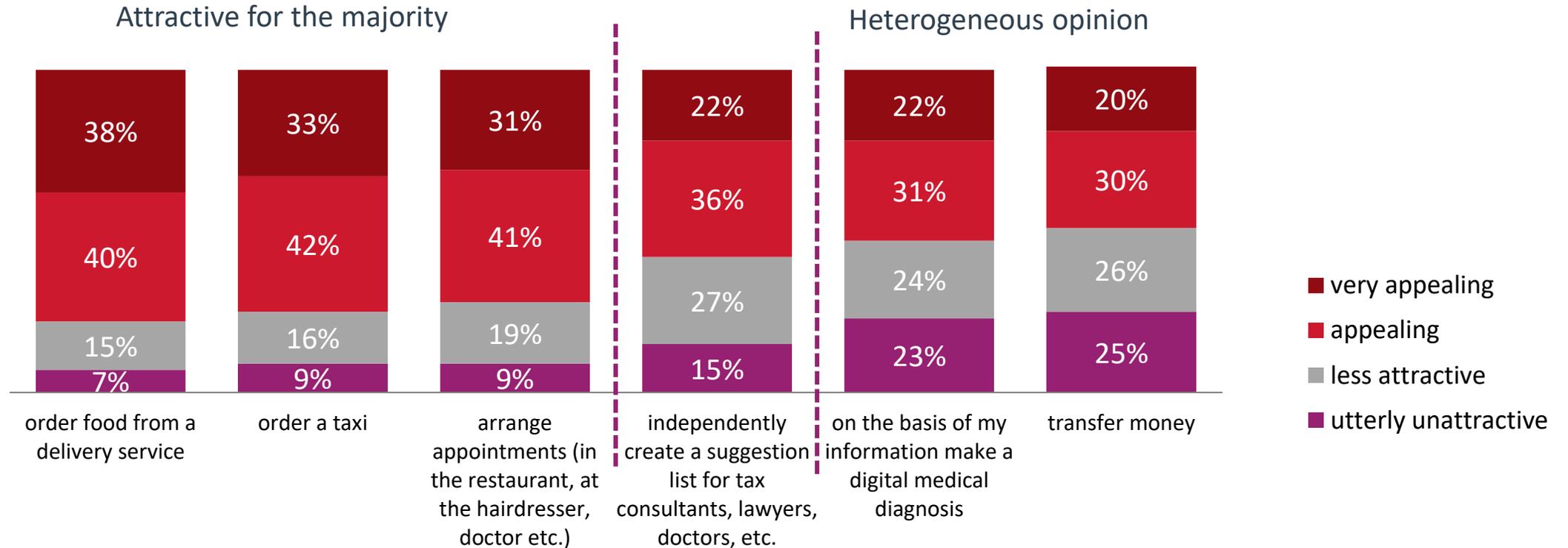
"compare offers for short trips and make
recommendations."

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Different services via smart speaker differ significantly in their attractiveness

How attractive do you find it to use each of the following services via voice assistant?

Prespecified answers



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

7

Chapter 7

**User forecasts for the general
development of smart speakers** ✕

User forecasts for the general development of smart speakers (1)

- The answers in Chapter 6 show that potential of smart speakers for purchasing purposes has not yet been fully exhausted. The same applies to many other areas of application for digital helpers. However, according to various media reports and expert forecasts, the advancement of voice assistants with smart speakers – especially in terms of improved user experience – will continue at a rapid pace (e.g. Handelsblatt, Sept. 2018; Business Insider, Aug. 2018; or Harvard Business Manager, Issue 1/2019) .
- To find out the point of view of speaker-experienced consumer on how the general development might continue, they were asked to evaluate some scenarios. This was done on a 6-point scale ranging from "no way" to "sure".
- When it comes to the uncomplicated ordering of goods, most respondents attribute an important role to voice assistants in the future: More than 60% of respondents consider it at least likely that shopping with voice assistants will be quite normal in 5 years. Almost as many predict, however, that many brands will

have problems if voice assistants make purchasing decisions in a few years. Perhaps this group sees problems for dealers and manufacturers in getting their offers into the suggestion lists of the smart devices. It may indeed be difficult for companies to come to terms with the providers of smart speakers and voice assistants – but they will be hardly able to ignore them. Finally, the manufacturers of the most widely used voice assistants have so much market power that they can partly impose conditions on retailers and manufacturers for gaining access to the new sales opportunities.

User forecasts for the general development of smart speakers (2)

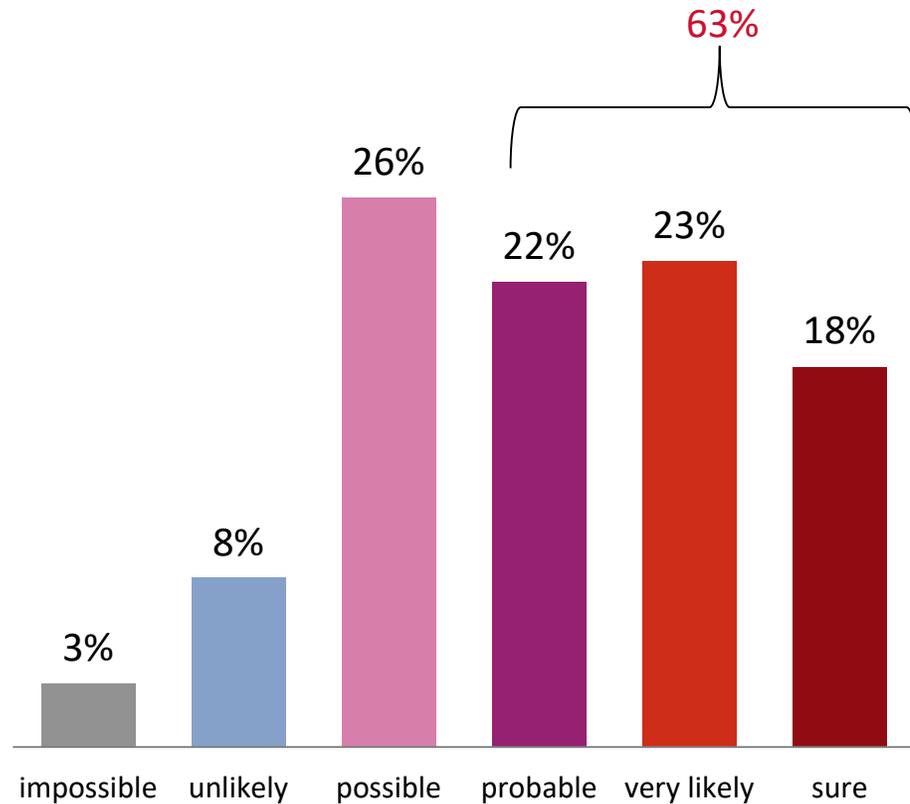
- And even if the gatekeepers did not make use of their dominant position, the companies face new marketing challenges such as the development of catchy jingles or voice logos that stick in one's mind.
- According to about one in two respondents, voice assistants are likely to change our social lives as well – because may we spend less time in front of (familiar) screens and see voice assistants as more trustworthy than human advisors.
- In the group of heavy users, even more respondents consider the above-mentioned changes to be at least likely. The predictions of heavy users are particularly clear when it comes to the impact of smart speakers on social life: only a small proportion consider it unlikely that voice assistants will lure people away from the screens (13%) or appear more trustworthy than human advisors (14%). The exciting question will be which human consultants might be perceived as redundant in the future.
- The openly formulated wishes for the future reveal that many more things are conceivable. The ideas of some respondents go quite far: they range from support and advice in various areas of life such as finance or environmental protection, to the tasks of teachers, to assuming the role of a protector (e.g. in emergency situations) or even a therapist. (For examples, see pages 67 and 68.)

User forecasts for the general development of smart speakers (3)

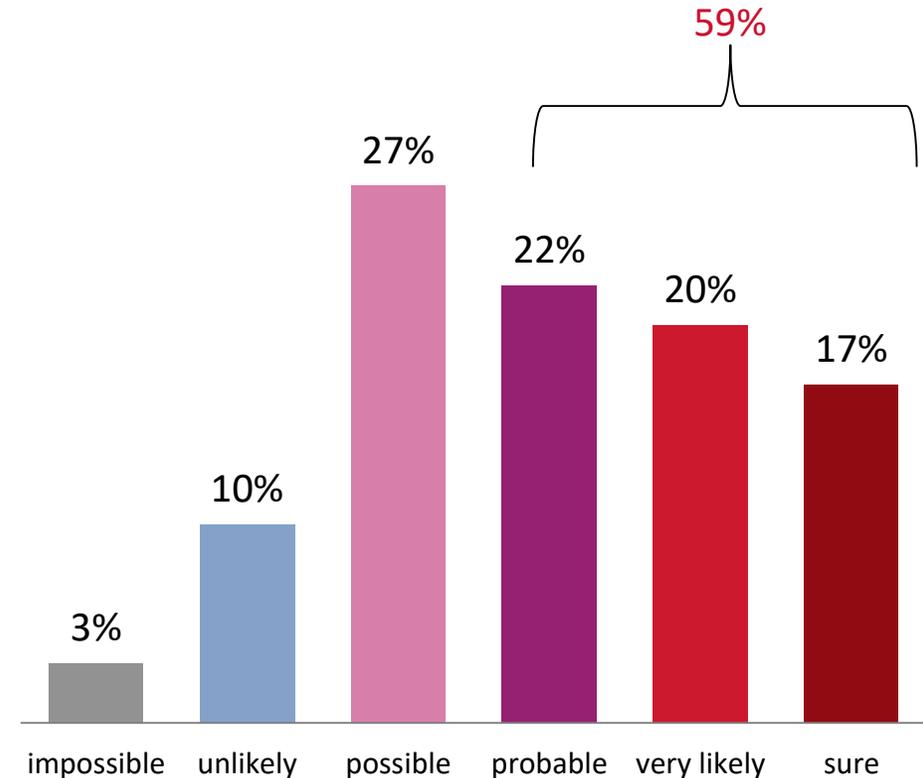
- At first glance, it may seem strange that people can imagine turning to digital helpers even with very private concerns. They probably assume that voice assistants – unlike human advisors – do not operate with a subjective bias or perhaps out of self-interest, but rather create their proposals on the basis of algorithms and thus offer a more comprehensive, objective basis for decision-making. And as a recent study on robot interaction in counseling has shown, the thought that a machine can deal with the problems of its 'clients' in a non-judgmental manner can be reassuring, especially when experiencing personal difficulties (da Silva, Kavanagh, Belpaeme, Taylor, Beeson & Andrade, 2018).

Hypotheses on the future of shopping with voice assistants

Shopping with voice assistant will be quite normal in 5 years



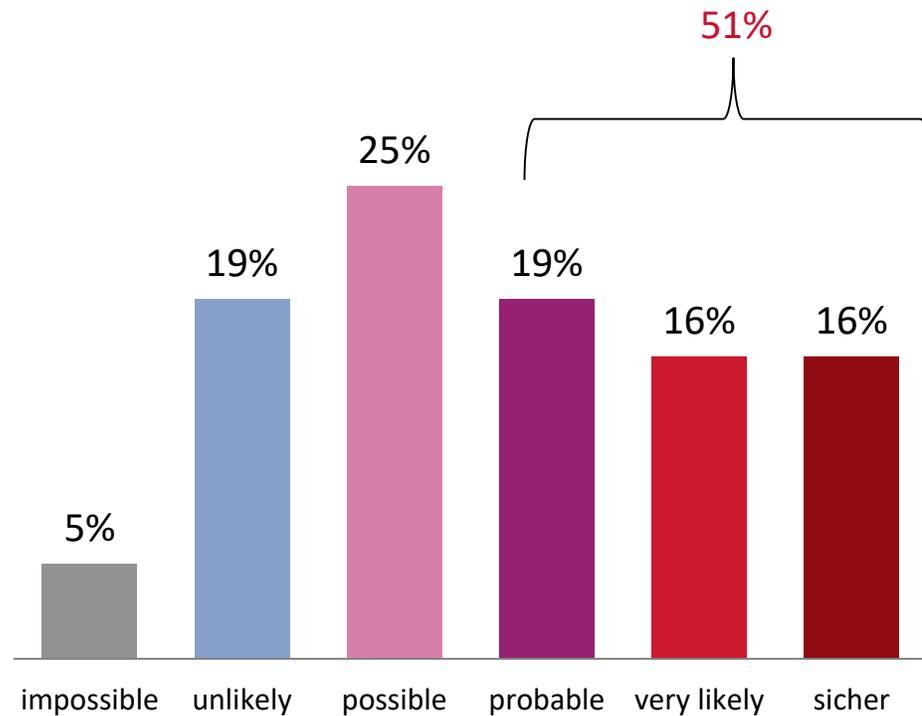
Many brands will face problems if voice assistants decide on purchases in the future



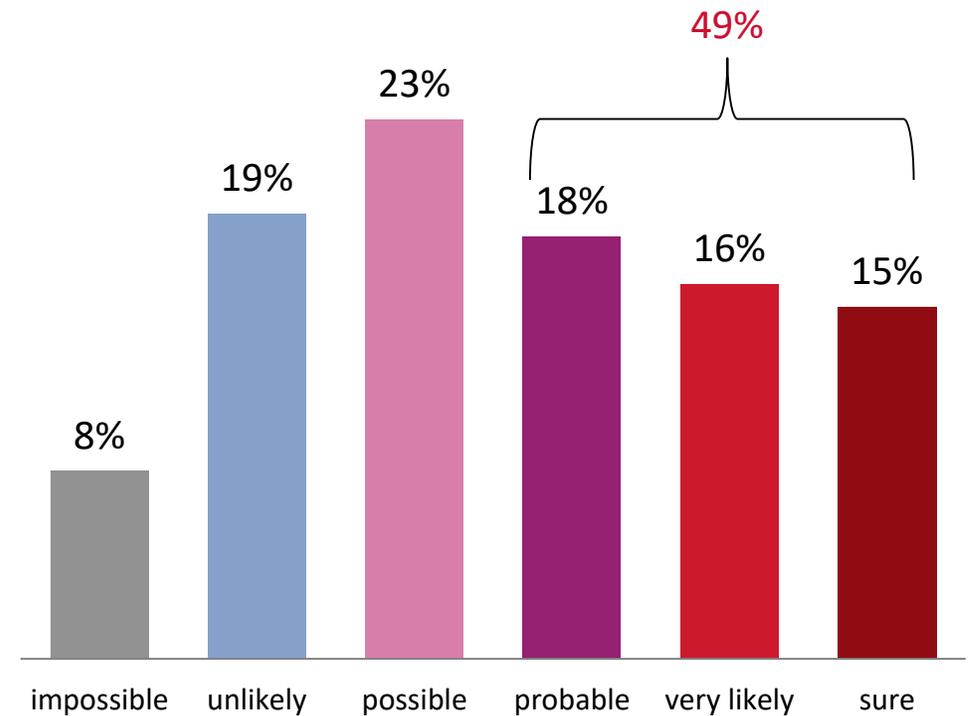
Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Hypotheses on the future of everyday social life with voice assistants

With voice assistants, people will spend much less time in front of any screens



Voice assistants will soon be more trustworthy than human advisors

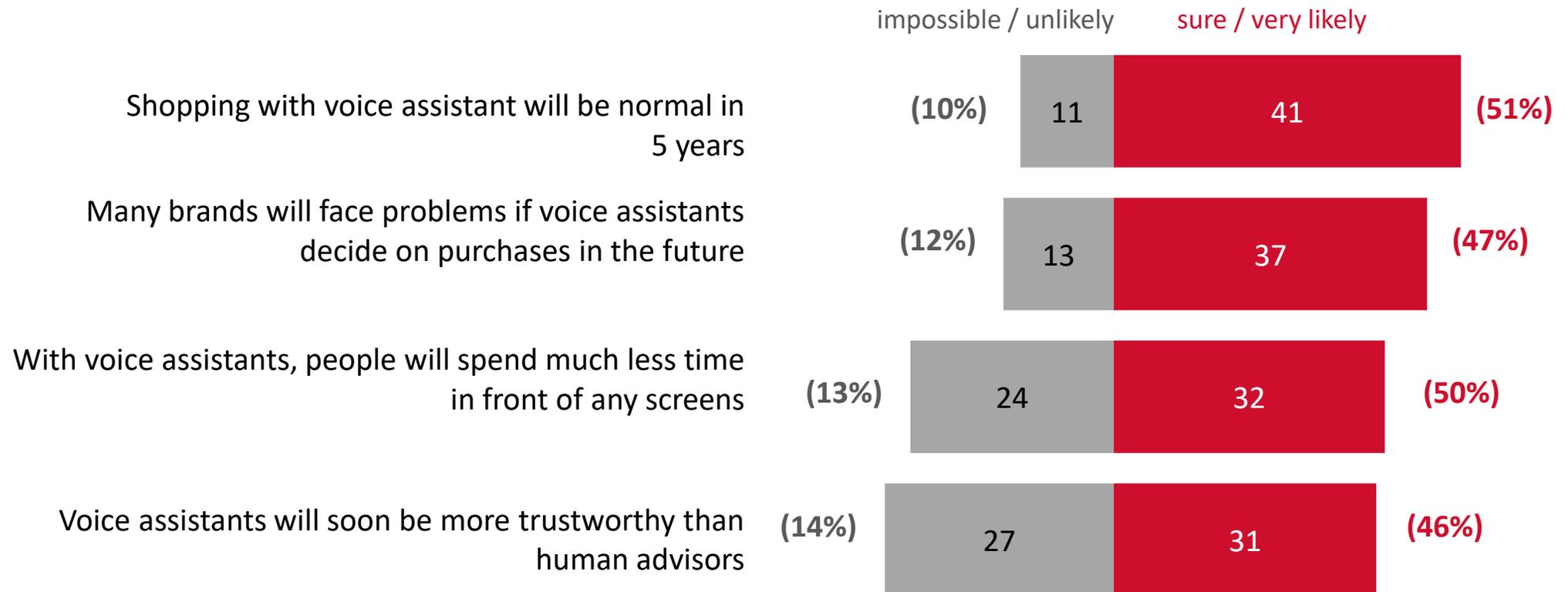


Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Only a very small percentage of heavy users consider it unlikely that VAs will soon be more trustworthy than human advisors

Top2 box versus bottom2 box, without intermediate answers (in parentheses: answers of heavy users)

Prespecified statements



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Many open wishes: Smart speakers with potential as teachers, consultants and protectors

Original quotes (some excerpts) from open question on future wishes
(spelling mistakes and punctuation corrected)



"Teaching my daughter math."

"...Vocabulary function with supply of the respective textbook, ..."

"Teach commands to the dog."

"'Watchdog' with camera and alarm at given times."

"Report of burglary and theft."

"He could use a code word to identify emergencies and inform ambulance/police."

"That the smart speaker supports me and my family in leading a more eco-conscious life. ..."

"Offer garden calendars, what to do at what time, ..."

"...that the smart speaker can help me cook and give me instructions to always make recipes work."

"Advising me in life situations."

"An independent financial advisory service ! ...the assistant should tell me "positive, neutral, negative."

"The smart speaker could be used as a private teacher, e.g. to learn languages or to support your studies. It would be great if the smart speaker could answer every question or explain complicated connections.

"Odour sensor, so you can find a certain perfume or as a taster at cooking."

"In case of burglary call the police, in case of fire call the fire brigade, especially if the occupants are absent."

"Emergency call function, building surveillance."

„Tracking function (children at school)"

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Many open wishes: Smart speakers with the potential to become a companion/partner or even a therapist

Original quotes (some excerpts) from open question on future wishes
(spelling mistakes and punctuation corrected)



"...have a real conversation, even with problems."

"To be greeted and asked about my day as soon as I enter the house."

"That he talks to me more, how I'm doing, etc. More individual answers tailored to me."

"Many depressed patients don't like to go to psychologists, instead the assistant could become some kind of psychologist and coach."

"Would be great if alexa could figure out on her own how I'm doing, then tell me what to do to make me feel better."

"Tell me things I find interesting. Talk to me like a friend, make me laugh."

"Motivate and cheer me up."

"...the smart speakers would have a personality. So that you can talk to them and they respond independently and purposefully to what you say. Like you can talk to them about worries or have a conversation..."

"For example, if I could talk to Alexa and there'd be no difference to another person, that you think you were talking to a real person, that would be cool."

"Knowing me so well that I'm asked before I even know it."

"Cheer up your child when it's sad..."

"Talk to me about the day what my fears and dreams are and motivate me."

Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

8

Chapter 8

Data security and profiling concerns



Data security and profiling concerns (1)

- In view of the predominantly positive expectations for the future, the question arises as to whether the study participants are aware of possible problems associated with smart speakers. Apart from speech recognition that needs to be optimized or a voice lacking in emotion, media reports in the context of digital helpers usually deal with data protection aspects. Do smart speakers with voice assistants threaten privacy, for example because the voice assistant is continuously listening? And how great is the risk that personal data will fall into the wrong hands without our knowledge?
- The owners of smart speakers do not look at their devices with complete peace of mind, as the approval values for three given statements on the subject of data security show: The vast majority of respondents think that conversations are recorded uncontrollably (80%), stored permanently (80%) and data, including recorded conversations, are passed on to third parties (79%). Overall, however, only between 40% and 42% of the smart speaker users surveyed have at least some concerns about these aspects, while – depending on the statement – between 36% and 39% believe that they are true, but feel little or no concern about these issues. Among heavy users, an even higher proportion consider the possible security gaps to be harmless.
- Although 40% of interview participants use smart speakers despite their reservations, a transparent and customer-friendly data privacy policy of the providers would certainly help to reach new customer groups. We had deliberately limited our survey to users of smart speakers. Stricter data protection and transparency could help address the concerns of people who are more cautious or critical about the technology. A further effect could be that smart speakers could also be used to a greater extent for transactions with sensitive data in the future.

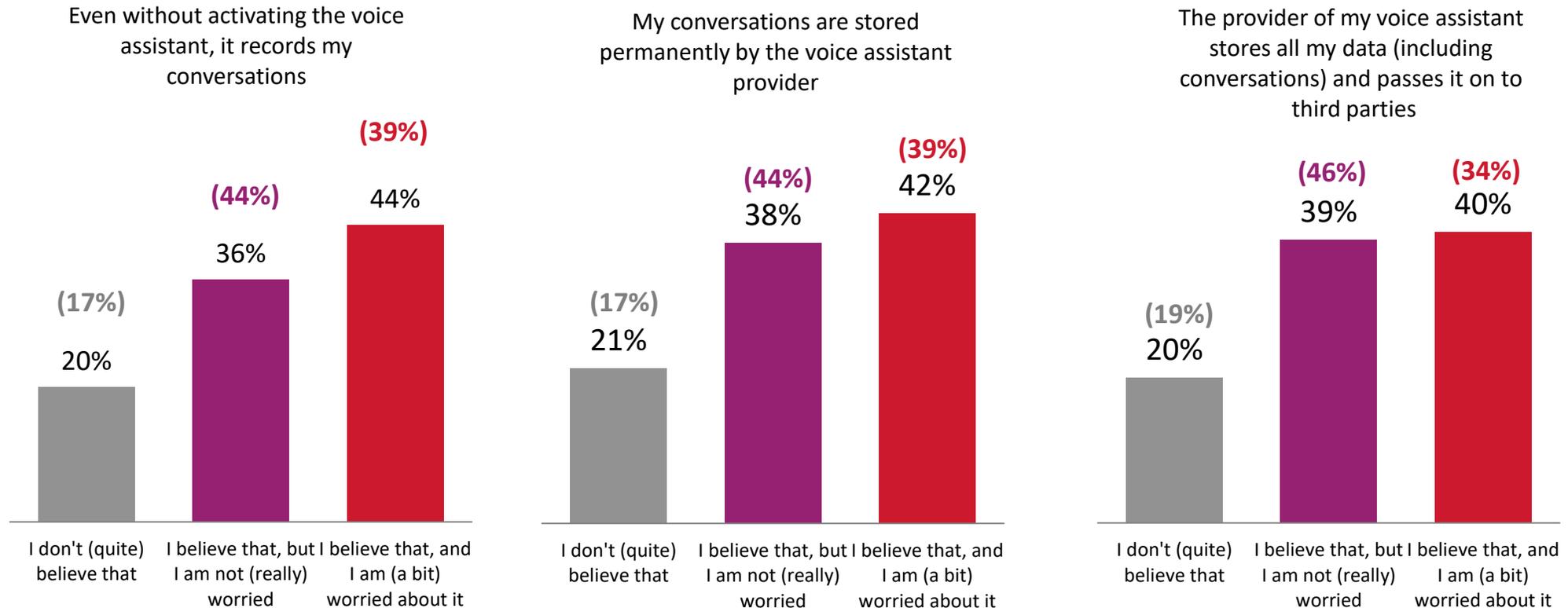
Data security and profiling concerns (2)

- In addition to statements on the subject of data recording, storage and transfer, the study participants were also presented with a statement on profiling. A large majority (86%) believe that voice assistant providers create a profile on the basis of the conversations in order to offer individualised services to users. 46% are not worried, but at least 40% have some concerns. Interestingly, heavy users do not differ from the entire sample in this question. Do the users have a fundamental problem with this idea, for example because the digital helpers – and above all the corporations behind them – could exert too much influence on purchasing behavior? Or are consumers more likely to be bothered by the fact that profiling measures are not yet fully developed and so sometimes offers are made that completely ignore the customer's wishes? Worries about individually adjusted prices may also play a role, which can be perceived as unfair (see Haws & Bearden, 2006, and Malc, Mumel & Pisnik 2016), as well as fears that due to the profiles created on the

basis of one's own purchasing history one will no longer receive new and surprising offers.

Concerns about smart speakers and privacy: heavy users are less concerned

Prespecified statements (in parentheses: answers of heavy users)

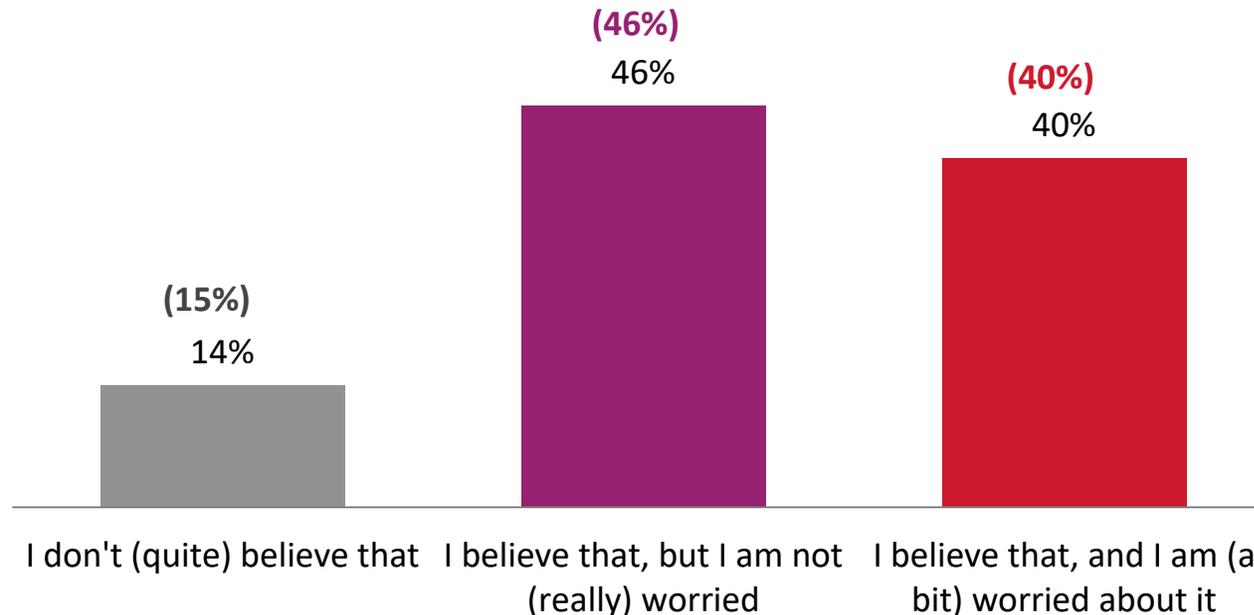


Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

Heavy users have as many concerns about provider profiling as the average user surveyed

Prespecified statements (in parentheses: answers of heavy users)

The provider of my voice assistant creates a profile of me based on my conversations, to adapt offers to me personally



Basis: n=1015 persons using (at least one) smart speaker with voice assistant in the household

9

Chapter 9

Summary and outlook



Summary and outlook (1)

- We have interviewed 1015 smart speaker users about their experiences, uses and future prospects of this new technology. Most respondents no longer want to do without their voice assistant, it has made their lives easier, more comfortable and often more entertaining. Many have even developed an emotional attachment to the device. Correspondingly, the tasks for which the assistants are used are varied, ranging from simple music and information retrieval, fun and games, to more interactive skills such as reminder functions or cooking support. And a good half of the respondents at least occasionally buy via smart speaker.
- Nevertheless, there is still room for improvement in various aspects. For example, many would like a more cheerful or emotional voice. And especially when shopping, the technology has not yet reached the end of the line: For example, users want more product suggestions and additional information like the ratings of other buyers and generally better speech recognition. There is still some uncertainty about ordering the wrong thing by mistake or paying too much.
- But that may change. Most respondents can imagine having their orders completely organized by the voice assistant in a few years' time and giving it important decision-making responsibilities, such as independent orders under certain conditions. The open answers express even more far-reaching visions of the future, such as autonomous ordering of missing items after information exchange with smart home devices, support for financial decision making and an eco-friendly lifestyle, protection in emergency situations or even counselling. However, data protection concerns should also be addressed, which are a reason to worry for a significant proportion (if not necessarily the majority) of users.

Summary and outlook (2)

- Many questions were answered with the present study – and at the same time new questions were raised: For example, to what extent are consumers willing to switch if the voice assistant suggested a different brand from the one normally preferred? For which product groups exactly would shopping be completely outsourced to voice assistants if it were possible? Up to which purchase value or budget would the sole advice of a voice assistant be trusted – or is it a matter of personal involvement in the product group rather than a question of money? And how can the criticisms and barriers that limit the use of voice assistants for shopping be removed – for example, should providers focus their efforts on improving data protection and profiling, or on technological innovations?
- In addition, many users want a more emotional voice, which raises further questions. Can a skeptical voice even prevent orders, while an enthusiastic tone makes you buy more? What else may a human-like voice trigger in consumers by varying the emotional expression? A team at the Nuremberg Institute for Market Decisions is already studying the effect of emotional voice of smart assistants on consumer decision making. We will continue to investigate such open questions – including new ones that will come up in the future – in further quantitative, qualitative and experimental investigations. If you, dear reader, have any suggestions, questions or need for discussion, we look forward to your e-mail.

claudia.gaspar@nim.org and anja.dieckmann@nim.org