Intelligent living in Europe

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Introduction

Purpose

The purpose of this research paper is to analyze and highlight the potential market for smart device ecosystems, as well as provide useful recommendations based on market data, local market trends and the sentiment of locals in Europe. In addition, readers will be able to understand how these devices can assist them through daily activities, as well as the enhanced capabilities that devices provide once an interconnected ecosystem is established.

Objectives

This report aims to address the following:

1. The total addressable market (TAM) of intelligent ecosystem devices in Europe.
2. Top use cases and user habits with related frequency of occurrence in Europe (UK, Italy, France and Russia).
3. Future challenges and opportunities of intelligent living in Europe.
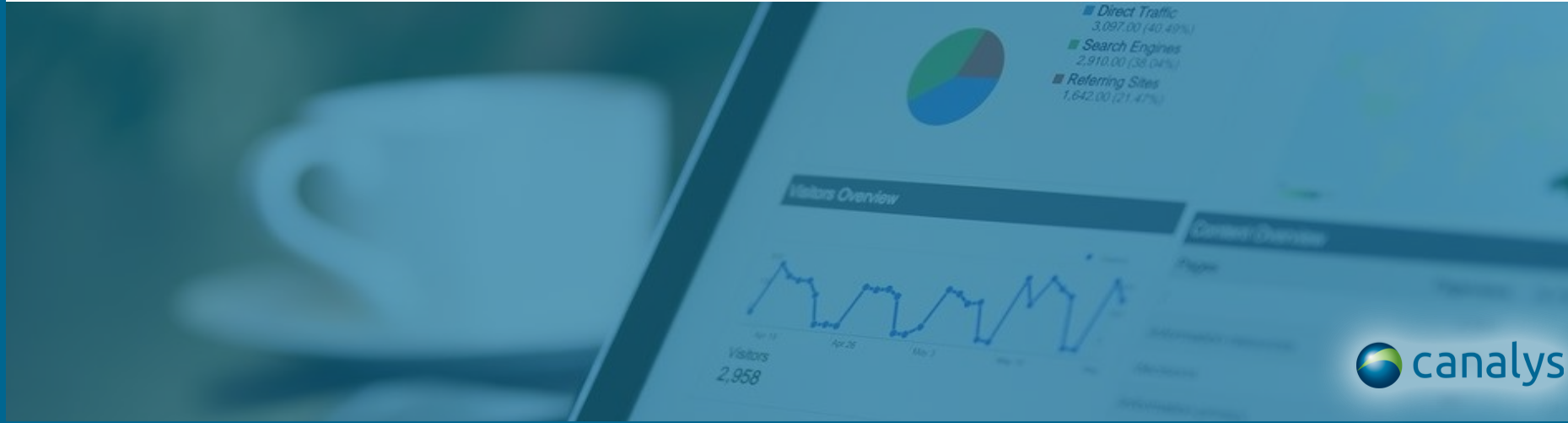
What is intelligent living?

Intelligent living involves smart devices, software and services being interconnected and working together seamlessly to form an ecosystem that surrounds the user. Its aim is to help users get through their daily lives more efficiently and effectively, so that they can focus on what truly matters.

Such devices are integrated with AI capabilities, enabling them to act on contextual information to provide timely services to users as needed. Though a smart device may be restricted to a limited set of functions by itself, when it is connected within an ecosystem, it is able to meet the demands of the user by performing more complex tasks.

In this report, intelligent living will be divided into four main categories for further in-depth analysis, with each representing a significant impact on the daily lives of end users.

The categories of use cases are:

- Entertainment

- Health and fitness

- Productivity

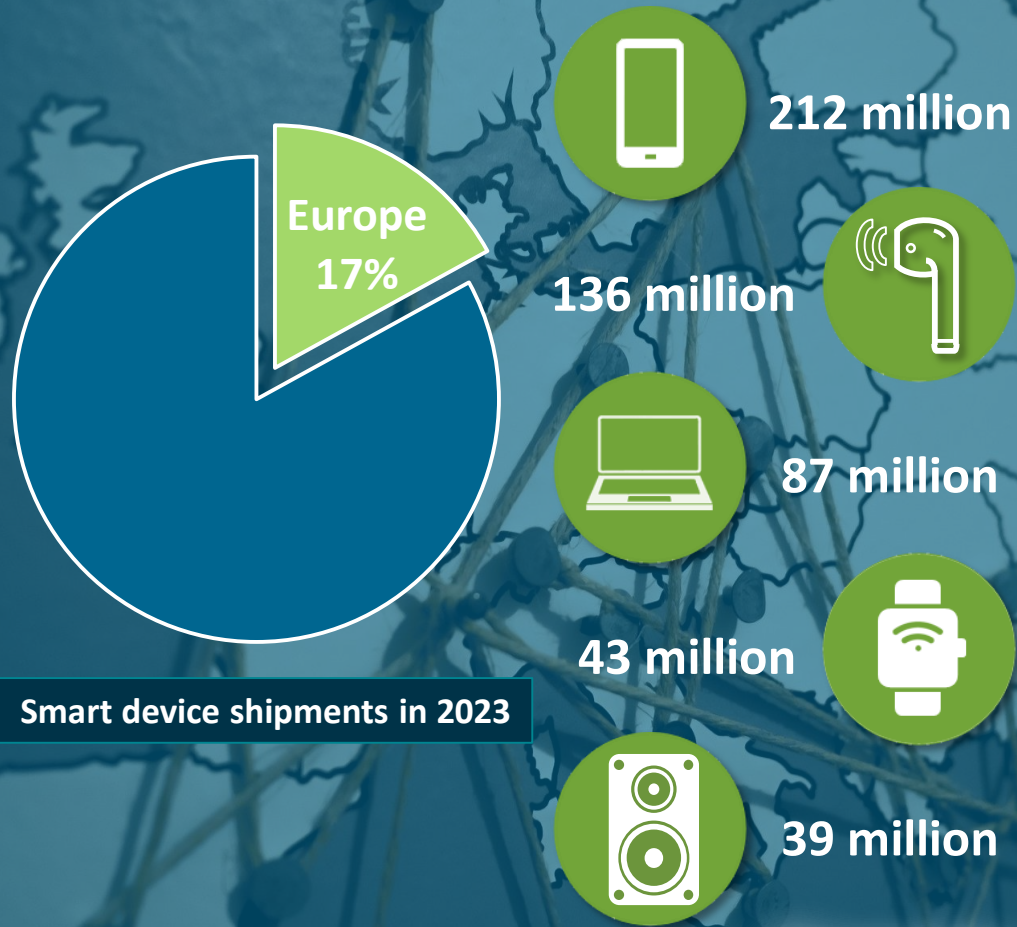- Connected living

IoT

5G

AI

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Intelligent living landscape in Europe

Canalys forecasts global smart device shipments will exceed 3 billion by 2023. These include smartphones, PCs, tablets, wearable bands, smart speakers and smart personal audio devices. Europe accounts for 17% of the global market, and is the third largest region behind China and US, with shipments set to surpass 500 million units in 2023. Between 2020 to 2023, the smart device market in Europe is expected to increase by a CAGR of 3.5%, with smart speakers and smart personal audio being the fastest growing categories, with CAGRs of 10.9% and 9.2% between 2020 and 2023.
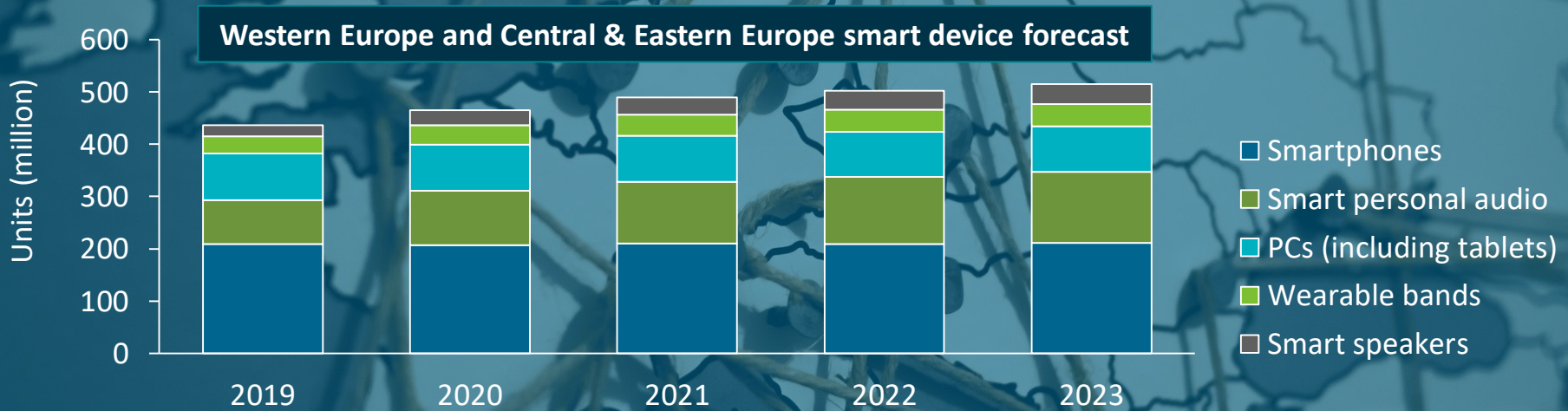
Strategic position of Europe

Europe has long been regarded as a lucrative and strategic market that global players cannot ignore. Its demographic composition is one key factor in technology adoption. The combined population of people aged 15 to 65 in Western Europe and Central & Eastern Europe is estimated at 510 million, accounting for 10.5% of the global population, the third largest behind China and India. In addition to the sheer size of its customer base, 37 out of 79 high-income countries (defined by the World Bank) are in Europe. The relatively high national income per capita of European markets presents a highly attractive target customer base for technology hardware and services.

Europe 17%

Smart device shipments in 2023

212 million

136 million

87 million

43 million

39 million

Source: Canalys estimates and forecasts, January 2020

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The market entry barriers for Europe are relatively low compared with other major technology markets, such as China and the US. This attracts a great spectrum of technology companies to enter and compete in Europe. Local consumers have a wide range of smart device brands and OTT mobile services to choose from, benefiting from local competition policy, which encourages competition to create value for consumers. This is becoming increasingly important for the smart device market to flourish in Europe as new products and software innovation are often driven by less established companies and new entrants.

Europe's technology channel is structured in a way that favors smart device players. Europe's retail landscape is highly consolidated, with a few large pan-European retailers dominating consumer technology spend. On top of this, many procurement alliances exist between retailers, bringing them closer together. In fragmented markets, consumers tend to be more price-sensitive, finding the best deal on each individual device from different stores. But in a consolidated market, the retailer can focus on selling multiple devices together as a solution, and many are also branching into after-sales services.

Western Europe and Central & Eastern Europe smart device forecast

Units (million)

Legend:
- Smartphones
- Smart personal audio
- PCs (including tablets)
- Wearable bands
- Smart speakers

Source: Canalys estimates and forecasts, January 2020

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Western Europe smart device forecast

For every **100** smartphones shipping in **2023**

18 Tablets

28 Smart speakers

24 Wearable bands

86 Smart personal audio devices

38 Desktops/notebooks

Western Europe

Smart personal audio devices, wearable bands and smart speakers are expected to gain wallet share as Western European consumers increase spending on such devices while delaying smartphone upgrades.

Smart personal audio devices are expected to become the most popular. 86 smart personal audio devices are expected to ship for every 100 smartphones shipped in 2023. Within the smart personal audio category, truly wireless earbuds are expected to grow at a CAGR of 12.3% from 2020 to 2023, compared to wireless earphones and headphones, which are expected to grow by a single-digit CAGR rate. Truly wireless earbuds appeal to Western European users more, with their convenience and integrated premium features.

28 smart speakers are expected to ship for every 100 smartphones in 2023. Western Europe is a market where global giants Amazon and Google are active, alongside local network operators, such as Deutsche Telekom and Orange, which are aiming to carve a market of their own with in-house smart assistants and unique service integrations.

Wearable bands are expected to be more popular than tablets, with 24 units shipped as opposed to 18 tablets shipped for every 100 smartphones.

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Central & Eastern Europe smart device forecast

For every **100** smartphones shipping in **2023**

- **6** Tablets
- **5** Smart speakers
- **15** Wearable bands
- **36** Smart personal audio devices
- **16** Desktops/ notebooks

Source: Canalys estimates and forecasts, Mobility, January 2020

Central & Eastern Europe

Smartphone shipments in Central & Eastern Europe are expected to increase by a CAGR of 3.0% from 2020 to reach 91 million units by 2023. Consumer spending will focus on smartphones, with less emphasis being put onto auxiliary devices compared with Western Europe. For smart device vendors to increase the attach rate of their peripherals, they must improve consumer awareness, smart device availability and inter-brand integrations.

Smart personal audio devices will become the biggest shipping smart device, with 36 units shipped for every 100 smartphones. Users are most likely to upgrade from their bundled earphones to wireless audio devices for the convenience and sound quality improvements.

While smart personal audio devices may see the greatest shipments among non-smartphone smart devices, smart speakers will experience the largest growth rate, due to the smaller base in 2019. From 2020 onwards, stronger efforts driven by local players, such as Yandex in Russia, will drive growth in the category.

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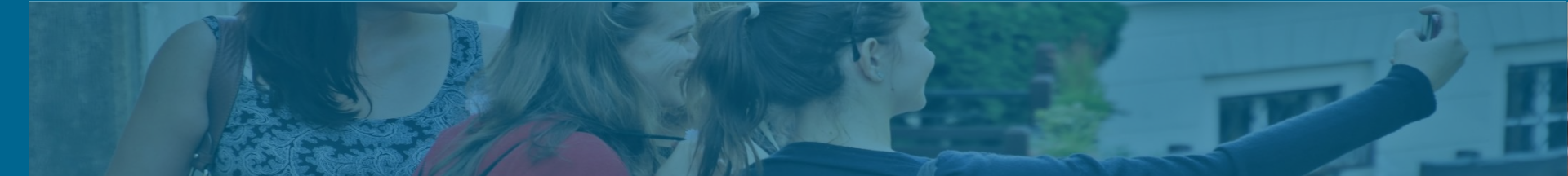
Device vendor strategy trends

As key touchpoint devices, such as smartphones and PCs, will remain important in users' day-to-day lives, smart device vendors will look to introduce new ecosystem devices to create intelligent living use cases. There are three major aims:

- To increase the capabilities of touchpoint devices to help users achieve more, further elevating the importance of touchpoint devices.

- To shift important features to other auxiliary devices, which are able to achieve the said features much effectively or efficiently.

- To create entirely new use cases, leveraging synergies between a number of devices.

Additive and adaptive design

- Changing or adding features to improve core elements of a device, expanding the boundary of the device to cover extended feature sets beyond its core functionality.
- The introduction of styli or detachable keyboards for tablets provides additional input methods beyond the touch-screen. This creates new use cases and provides enhancements to productivity for tablet users.

Subtractive design

- Removing extraneous parts in order to strengthen the core elements of a device, or to shift one lesser feature to an external device, which may provide a better experience.
- The removal of headphone jacks in smartphones brought an overall net positive, despite initial concerns, as users gained better waterproofing as well as wireless earphones / headphones with better functionalities.

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Recent market development trends

Europe is one of the regions that has maintained a strong awareness of climate change, and the development of smart cities. The European Innovation Partnership on Smart Cities and Communities (EIP-SCC) brings together cities, industry players and other stakeholders to make European cities smarter, more competitive, more habitable and more energy efficient.

Compared with the US and China, Europe needs to catch up in its AI endeavors. Europe aims to overcome its disadvantage when it comes to data access to further develop its strengths in the field of AI. The European Commission will support European companies to use data created within the EU's borders. This strategy will spur innovation in AI and IoT technologies but will require European companies, including network providers, to collaborate closely.

Project Connected Home over Internet Protocol (CHIP) is a new alliance formed between Amazon, Apple, Google and the Zigbee Alliance. Many of the Zigbee Alliance board members are European companies, including Ikea, Legrand, Signify (Philips Lighting), NXP Semiconductors and Schneider Electric. The aim of the project is to enable communication between devices, apps, cloud services, etc, therefore increasing compatibility between smart home devices. This project will invite participation from global players as well as domestic players in Europe.

Potentially damaging, reports have emerged about major platform vendors, such as Amazon, Google and Apple, where workers and contractors were able to listen in on users' conversations with smart assistants. European regulators are working on a common approach to police such activities and to safeguard users' privacy surrounding smart assistants. Clearly, recent efforts by platform vendors to hand privacy controls over to end users is not enough. Smart assistant development will face hurdles as the EU assesses setting tougher rules for AI.

Europe is expected to benefit from a robust regulatory framework that protects user privacy and data security, and an overall encouraging environment to support the development of intelligent ecosystems.

Key factors to form a seamless ecosystem

- **Devices should now be designed to exist within an ecosystem**. Smart devices should no longer be thought as singular devices. Each device should be positioned as a piece of a bigger puzzle. Each device must perform its core functions well. While positioned in the ecosystem, a device can establish itself as a touchpoint to generate data, while unlocking new use cases when linked to other devices.

- **High interoperability and compatibility across devices is needed.** It is highly challenging for consumers to invest in a single device brand. Hence, it is important to ensure cross-brand and cross-device compatibility. Ensuring a consistent software experience will also be vital.

- **Devices and features must be highly accessible to all users**. From getting devices connected, to setup and intended use, devices must be easy and intuitive to use. Device user interfaces are expected to expand to include multi-modal interfaces, including voice access.

- **Integration of AI is vital to offer actionable intelligence.** Smart assistants will play the role of interfacing with users across multiple touchpoints in the ecosystem. Smart assistants must be able to communicate across devices, mobile apps and cloud services to provide actionable intelligence and perform tasks as intended by the users.

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Breakthroughs to achieve intelligent living

Knocking down barriers
Software and standards to break the barriers to enable seamless integration across multiple devices, allowing services to be device- and platform-agnostic

Hyper-personalized use cases
New generation of connectivity brings flexibility to intertwine devices with different levels of complexity and network needs, further increasing AI interoperability
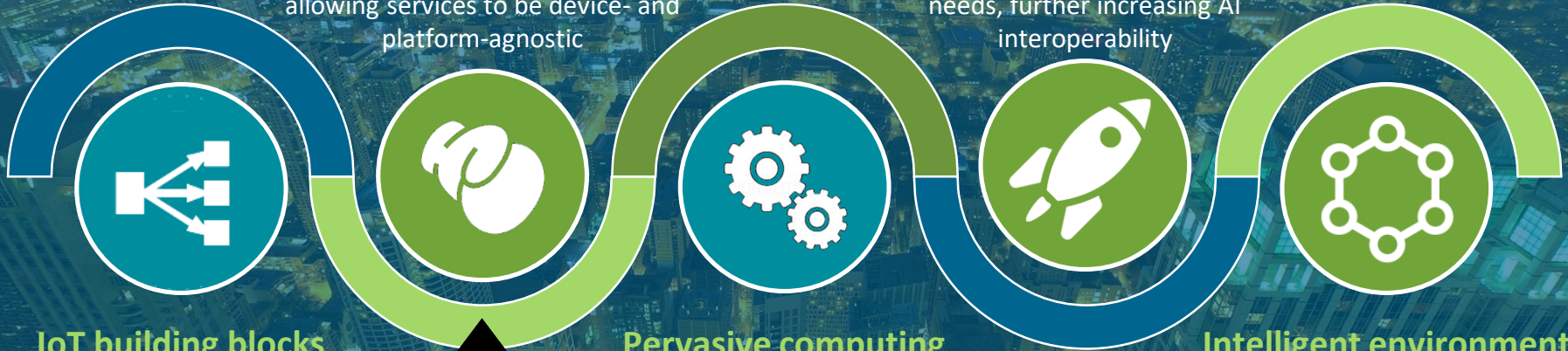
IoT building blocks
Devices fuel the ecosystem, forming the foundation to better understand users and to explore the creation of new ecosystem-driven use cases

Where we are now

Pervasive computing
Hardware and software work in perfect harmony; AI able to serve users dynamically across multiple devices, following users across multiple scenarios

Intelligent environment
Achieving the possibilities of the environment being able to proactively assist users intelligently

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Intelligent living ecosystem use cases

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Entertainment

- **Audio and video**
  Offering users high-quality audio and visual experiences while consuming content, be it on the go or in specific environments or user scenarios
- **Gaming**
  Elevating users' game-play experience and performance so they can enjoy and gain a competitive edge

Health and fitness

- **General well-being**
  Helping users to improve the state of personal health by achieving better body weight, better sleep, better stress management and more
- **Sports and fitness**
  Helping users to perform better in the sports they engage with, allowing them to challenge their personal best

- **Enjoyable experience**
- **Convenient**
- **Effective**
- **Accessible**

Productivity

- **Mobile worker**
  Allowing workers to achieve peak productivity wherever they work. Devices aim to provide the performance or the flexibility to suit different tasks
- **Content creator**
  Leveraging a number of devices to create a conducive environment to spur creativity

Connected living

- **Smart home**
  Achieving key use cases, such as home automation, control and monitoring to aid users in convenience, safety and achieving energy efficiency
- **Mobile lifestyle**
  Allowing users to attain key features and services, completing tasks while on the go

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Entertainment – overview

The importance of video and audio content is growing, as more devices and services rely on this media to convey information to end users. As the digital landscape shifts toward video, the demand for wireless audio devices, such as Bluetooth earphones and headphones, will increase, as users seek convenience and quality. The rising "hearable" concept, truly wireless earbuds, aims to be smaller yet smarter, and are intended to be worn for longer periods of time. Integration of smart assistants and sensors will be crucial to create new use cases and position them as a viable touchpoint for users. At the cutting edge, some smart personal audio devices are adopting hearing aid technology to enhance users' hearing. On the flip side, hearing loss could become an issue as users wear audio devices for longer periods, and more younger users, including children, are exposed to prolonged headphone use. Smart device vendors have the responsibility to integrate safeguards to protect users.

Ubiquitous high-speed connectivity and the democratization of smartphones allows gamers to play online games whenever they want, and the quality of games playable on mobile devices has improved massively. As games increasingly integrate in-game voice interaction between players, the need for headsets also increases. Enthusiastic gamers who prioritize their gaming experience are willing to invest more to get the most out of their hardware, even if that involves tinkering with their devices. 5G and cloud gaming promise to extend high-quality gaming to more people. As long as there's high-speed Internet connectivity, any mid-range device, including smartphones, tablets and notebook PCs, will be able to play high quality AAA titles streamed from the cloud. On the other hand, the rise of foldable displays and dual-screen devices offers new form-factors and modes to enhance the gaming experience.

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Audio and video use cases

Video exploding on social media: Social media platforms have been evolving to include more audio and video content. Short video-sharing platforms are taking over as data consumption on mobile devices is becoming less of a concern. Such social media platforms aim to fill up users' fragmented time. This leads users to increasingly wear their truly wireless earbuds longer, though they may not be consuming content all the time.

Changing habits: Streaming platforms Netflix, Apple TV+, Amazon Prime Video, Disney+ and others are changing users' viewing habits. Users are more likely to enjoy such services across multiple devices. Streaming services must be able to deliver the best watching experience across different devices, including smart TVs, notebook PCs, tablets and even smart displays. While wireless audio devices are mostly paired to smartphones, compatibility and seamless pairing across devices, such as tablets, will offer an alternative listening experience when users need to be more discreet while consuming content.

Live-streaming: The streaming market shows potential in Europe. Live-streaming culture via smartphones has matured over the years, as influencers showcase everything from make-up tutorials to music shows to workouts to live sporting events. Traditionally, streamers would rely on only a smartphone to simply start a stream. But for enthusiasts or professional streamers who stream live outdoor events, they may now require multiple devices to be connected to a high-speed and stable connection to live-stream high quality streams.

Video consumption habits are changing rapidly

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Devices bringing new modes of gaming

Gaming use cases

Portability and expandability: Notebook PCs are thinner and lighter, yet they are more capable of handling demanding AAA games. Users expect a gaming experience without extreme compromises while on the go, while retaining good battery life on a device optimized to run cooler and quieter. But at home, users can easily connect to a bigger screen, and maximize the PC's capabilities to run games at higher quality.

Competitive edge while mobile: Smartphones allow gamers to play anywhere, at any time. New smartphones boast better performance and bigger screens, but additional accessories can also improve gameplay significantly. Special adapters to enhance device performance and controllers for precise controls are gaining popularity. Special gaming modes also promise to provide further optimization for gaming.

Wireless audio while gaming: Sound affects the overall gameplay experience. On both PC and mobile, gamers are increasingly using wireless earphones or headphones due to the convenience they provide. But poor latency is an aspect that stood out for mobile gamers. Devices are now providing low-latency wireless audio with gaming enhancements, which allows users to use sound as an advantage during gameplay.

Gameplay live-streaming: Gameplay live-streaming is hugely popular among the gamer community, and there is an increasing demand for mobile game live-streaming. Live-streaming PC or mobile games is challenging, and only enthusiasts are invested in such activities at the moment.

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Health and fitness – overview

Wearable devices are powerful tools on their own. It is vital for devices to be able to set realistic goals and allow users to understand how such goals help them stay in shape. This requires the user to play their part in committing to a routine that leads to a healthier lifestyle, and wearable devices can work as a commitment device in this regard.

Wearable devices work as a trusty companion for athletes and enthusiasts across different levels, each needing a varying degree of tracking capabilities. Accuracy, deeper data granularity, and the ability to perform in different and sometimes harsh environments are important aspects for the high achievers. For most, they rely on smartwatches to stay connected and entertained. Cellular integration into smartwatches would even allow users to leave their smartphones at home yet be able to stay connected and reach emergency services when needed.

Wearable devices are progressing to become better at monitoring and detecting health conditions. Smartwatches are expected to become vital for key users who are suffering from chronic illnesses. New home fitness features use smart TVs, smart speakers and smart displays to enhance the home workout experience. For example, users can cast workout guides from smartphones to smart TVs and continue to track workouts on their wearable devices.

The role of a wearable can be enhanced with new sensor integration. Other types of sensors, such as temperature and chemical sensors, can be added to allow tracking of additional data points on the body and in the environment. These datapoints can be used by other devices within a user's proximity to ensure that users are in optimal condition.

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Wearables committing users to stay healthy

Diagram of a continuous cycle:
- 01 — Data collection
- 02 — Smart notification
- 03 — User actions
- 04 — Achievements

General wellbeing use cases

Combating sedentary lifestyle: Users' daily activity, including steps, flights of stairs climbed and time spent being idle, are all recorded and presented to users as graphics, which are easy to understand, on either the wearable device or the companion app. Users are encouraged to hit a specific set of targets, and new goals are suggested based on previous performance to encourage users to stay active.

Stress tracking: Stress can be tracked via heart-rate variability, and it can be used for general stress management, as well as to generate feedback to guide athletes' rest and improve workout performance. Devices are now quantifying stress levels during activity and rest, and the companion app provides insights by linking stress with recovery, sleep and physical activity.

Stress management: Breathing exercises are becoming common on wearable devices, some offering notifications to remind users to start breathing exercises when a high heart-rate during a low level of activity is detected. Some devices are incorporating mindfulness exercises via audio guides. These features aim to relieve stress but may provide little feedback and insight for users.

Sleep tracking: Users are looking to improve their sleep quality. Wearable devices track the amount of sleep, with some estimating REM sleep, and light and deep sleep. It is challenging to offer effective sleep advice, and the issue remains that users just do not get enough sleep.

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Sport and fitness use cases

Workouts: Wearable devices can track different types of workouts automatically. Many offer complementary workout lessons that users can engage with while they are at home or at the gym, with some watches offering on-screen workouts. Gym equipment manufacturers are also working with wearable vendors to enable integration between gym equipment and wearables to provide more accurate data.

Running: Using wearables to track runs is one of the most common use cases. Running is highly accessible to many, and a good way to train the body. The activity has evolved to a point where users can use audio-guided lessons or prompts from wearable devices to train for different runs, as well as to run correctly to reduce the chances of injury.

Sports activity: Wearables are getting more sophisticated and are able to track team and ball sports, such as basketball, badminton and tennis. While these are just a way to offer a quick estimation of amount of calories burnt, professional wearable devices aim to gather as much data as possible for further analysis to improve athletes' performance. Many of those features, such as heart-rate variability tracking and specific sports tracking profiles, are expected to trickle down to more consumer-friendly devices.

Outdoor trekking: GPS tracking is vital for outdoor activities, such as running, biking and trekking. Smartwatches are integrating maps into the device, offering live GPS location capabilities to help trekkers to navigate in the wilderness.

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Connected living – overview

Home is one of the user scenarios where a network of devices can work together to create new use cases, using features from smart doorbells to smart thermostats. European users are known to be more hands-on when it comes to home improvements, and their pursuit of higher living standards pushes them to explore different smart devices for their optimal smart home setup. This process will be made simpler soon as the CHIP project promises to improve compatibility of smart devices across different platforms and cloud services. The smart home and connected living experience can also be improved by devices such as smart hubs, routers and CPE devices that enhance connectivity coverage, but are also embedded with AI-driven technologies that bring intelligent network capabilities to enable devices and services to work better despite the increasing network load.

The mobile lifestyle has also been changing as users adopt more devices while on the go. Commuters are seen increasingly carrying smart personal audio devices, such as wireless earphones, to cater to their mobile entertainment needs. For drivers, integration of smartphones in in-car cabin technology is easily achievable. As cars adopt standalone connectivity and gain more compute power, smart assistants are expected to gain more control over important car features, with a strong focus on providing driver safety enhancements while on the road. The arrival of autonomous driving may ultimately change how we use our in-car devices in the future.

Smart assistants are now expected to be one of the key components that bridge multiple user scenarios to create the ideal ecosystem for intelligent living. They will work seamlessly across homes, offices, cars and while on-the-go. Apps and services will have to consider smart assistants and voice access as user-interface components that must be integrated to ensure services can be reached on more devices. Smart assistant interoperability is needed to ensure that smart assistant and online services are available on all devices on all major platforms. This require rigorous collaboration between industry players at different levels.

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Smarter home as a better place to live

42%
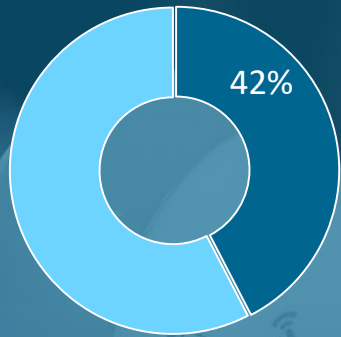
2+ smart devices

40% of respondents in the UK have smart speakers at home, the highest among surveyed markets.

Among UK smart speaker users, 42% have two or more devices connected to their smart speakers.

Smart home use cases

Home automation: Smart speakers are becoming the central hub for controlling smart home devices and appliances. Smart home controls and setup are made easier and enjoyable with smart assistants' voice interactions, and the proliferation of smart speakers also helps to drive the increase of connected smart home devices. With more contextual information, smart homes can improve the wellbeing of households, by making sure the living environment is always at its most optimal and safe.

Safety: Home security is more accessible with plug-and-play devices that require little professional setup. Most cameras, sensors and devices are wireless, and are compatible with major smart assistant and smart home platforms. Users can rely on smart displays to view and control such devices more effectively, and smart assistants can proactively alert users to any anomalies on multiple devices.

Home entertainment: Smart features are being brought into home entertainment, with smart speakers, soundbars, smart TVs and streaming sticks gaining greater connectivity and smart assistant capabilities. The freedom to play music around the house, as well as casting and streaming content on smart TVs, is convenient for children and adults alike.

Energy efficiency: Smart thermostats and newer energy efficient smart appliances are making headway into more households. These smart appliances can learn user habits and adapt accordingly in order to enhance energy efficiency and minimize wastage. Heating and cooling remain one of the most power-consuming aspects of the home.

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Mobile lifestyle use cases

Smarter commute: NFC payments to get onto public transport, and mobile payments on smartphones or wearables, are some essential features that users depend upon while they commute. Listening to music, podcasts and watching videos are also commonly enjoyed by most while commuting. These activities may seem less important, but some users depend on such methods to learn and to catch up with news. The use of wireless audio devices is becoming more apparent, due to the convenience that these devices bring as opposed to wired devices.

Navigation and in-car safety: Smartphones offer superior flexibility and accuracy to search for points of interest, and to navigate to specific destinations. Newer cars are adopting both Android Auto and Apple Car Play, allowing smartphone features such as navigation, music and audio streaming to integrate into the infotainment system. More importantly, smart assistants are enabled to ensure drivers focus on the road with hands-free, voice-first features. Plug-in accessories with Bluetooth connectivity also offer similar smart assistant feature integration between smartphones and older cars.

Quieter journey: Noise-cancelling wireless audio devices drown out ambient noise, providing an ideal environment for rest, entertainment or productivity for long-distance travellers. These devices aim to offer comfort and battery life for all-day wearing, with improved noise cancellation featuring specialized processors. These high-end features are made more accessible now, as truly wireless earbuds are also capable of offering good noise-cancelling performance in a smaller package compared with over-ear headphones.
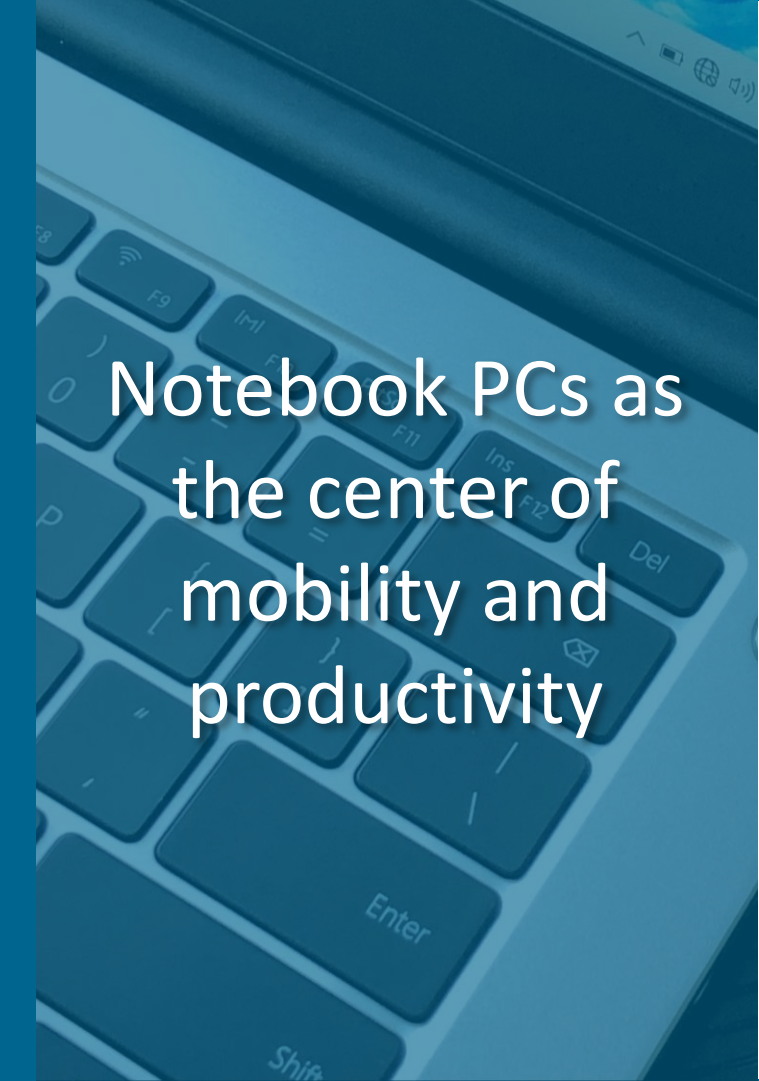
Smartphone and ecosystem devices adapt to user scenarios

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Productivity – overview

The gig economy has created growing opportunities for contractors and freelancers, while office workers become increasingly mobile as employers adopt a more flexible working culture. For the new generation of mobile workers, mobility, connectivity and the ability to rely on a small number of devices to work efficiently is important. Continuity features between smartphones and mobile PCs can improve productivity and convenience, but such features may also serve as a distraction, with instant messaging and notifications from social media popping up on screen. Tablets with detachable keyboards aim to bridge between the flexibility of the mobile app ecosystem and desktop productivity applications and features. Productivity mobile apps for tablets must reach maturity before such devices can be widely adopted in schools and businesses.

Always-connected PCs with 5G integration are expected to introduce the next wave of productivity improvements to enterprise mobile workers. But productivity apps and services need to uncover use cases that use 5G, especially in the areas of cloud storage, collaborative tools and security. Such improvements are expected to focus on more traditional notebook PCs in the form of clamshells and convertibles, but foldable screens and dual-display form factors may give rise to new productivity use cases.

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Notebook PCs as the center of mobility and productivity

Productivity use cases

Maximizing productivity: For most workers, there is nothing that can replace notebook PCs when it comes to general productivity, such as word processing and spreadsheets. But workers today cannot reach a high level of productivity without smartphones. Smartphones are better tools than PCs in many areas, including taking down and sharing information via photos, making calls, jumping into conference calls quickly, and getting information from apps and services. When connected to the PC, smartphones can now share screens, files and even apps to further maximize productivity.

Creative pursuits: Creators, including photographers, videographers, vloggers and influencers, rely on multiple devices to perform their work, obtaining photos, video footage and sound, then editing them on PCs and subsequently posting them online. They can benefit from the ecosystem of devices working together seamlessly to create a conducive environment, ensuring that they avoid worrying about trivial tasks and allowing them focus on putting their creativity to work.
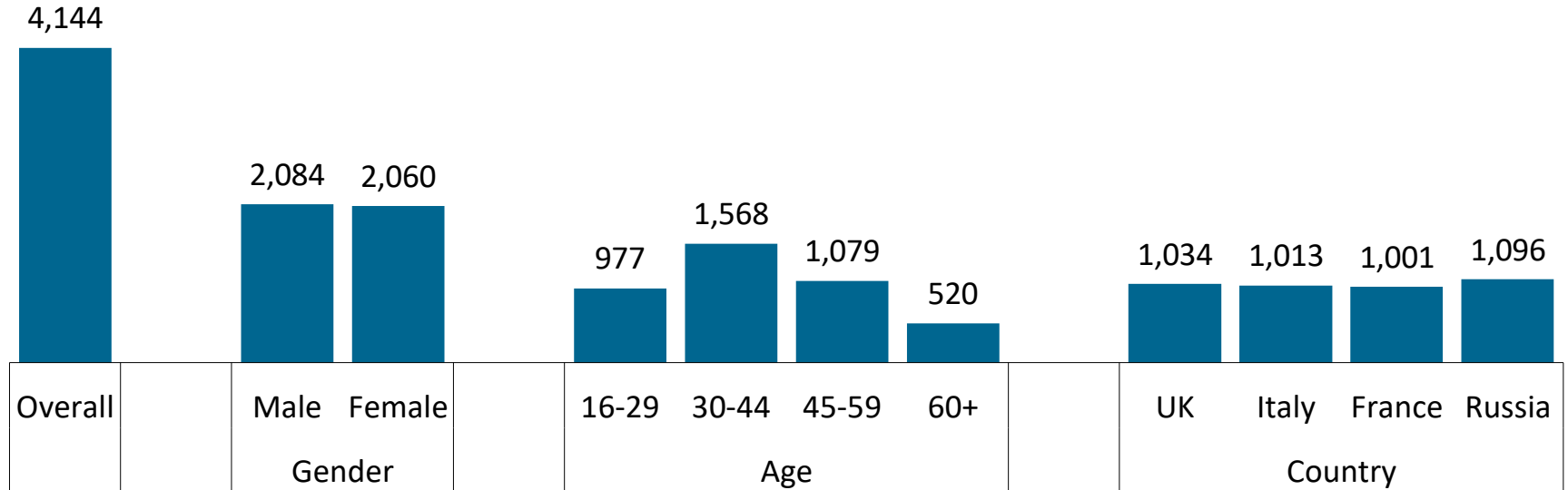
Flexibility to cover the essentials: Students' need for a notebook PC for school use may vary, but such notebooks should cover the essentials of completing school assignments, from essay writing and creating content to coding, in a portable package with battery life long enough for a couple of lectures. The same device should provide the capabilities for casual gaming and a good experience for TV streaming or movie watching.

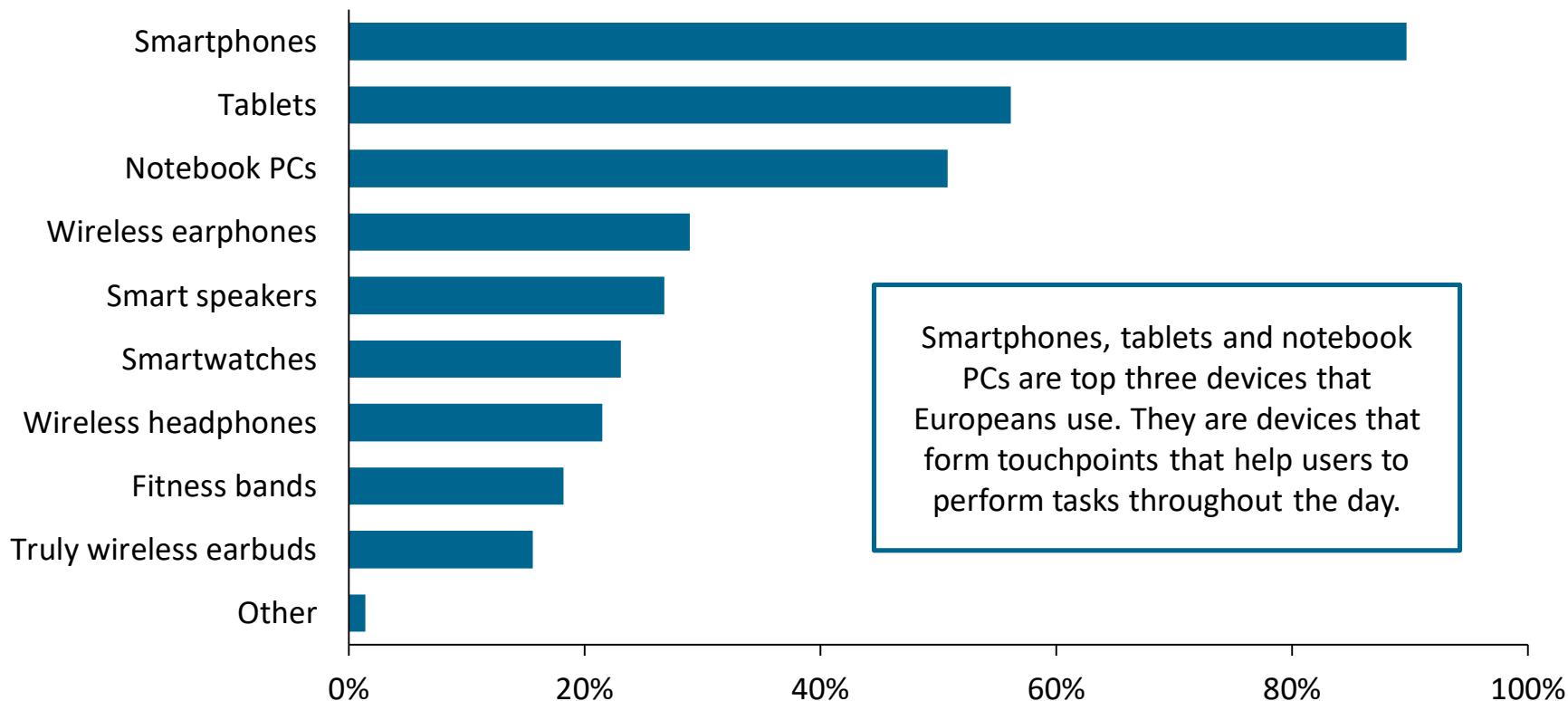canalys

Consumer sentiment analysis

Survey methodology

Canalys conducted a survey with the aim to uncover insights on smart device and intelligent ecosystem use case adoptions in Europe. This survey was conducted online during the third week of February 2020. A total of 4,144 respondents from the UK, Italy, France and Russia, age 16 or older completed the entire survey. Each country yielded a response total of over a thousand.
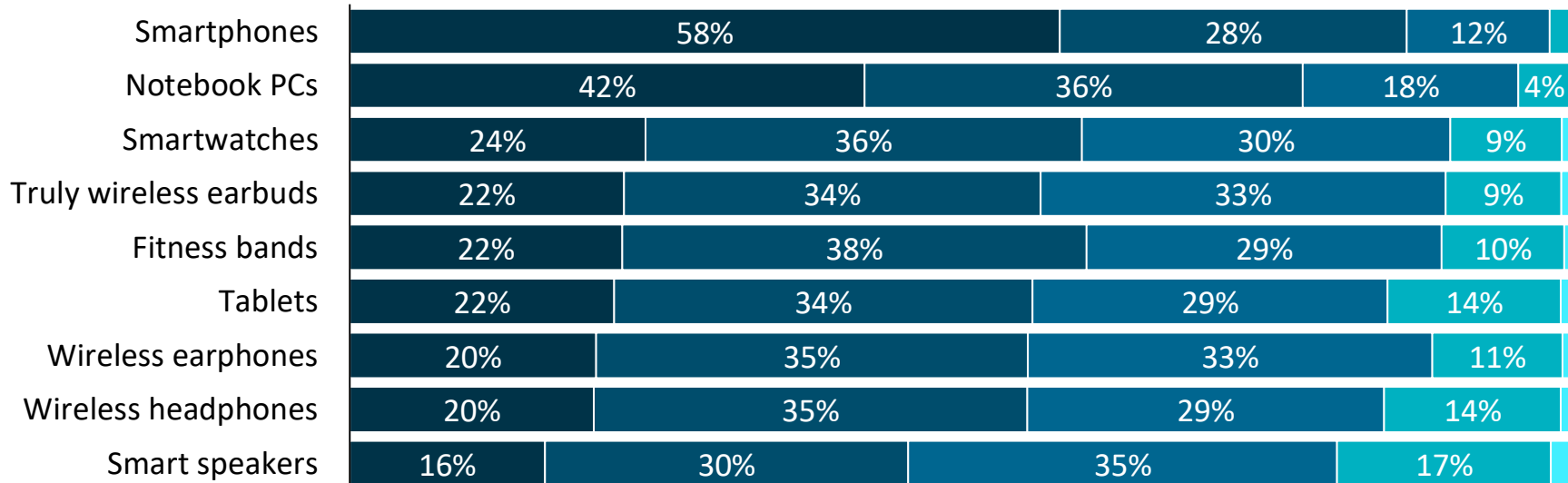

Overall		Male	Female		16-29	30-44	45-59	60+		UK	Italy	France	Russia
4,144		2,084	2,060		977	1,568	1,079	520		1,034	1,013	1,001	1,096
		Gender				Age					Country		

What smart devices do you use? (all countries – UK, Italy, France, Russia)

Device	Percentage
Smartphones	~89%
Tablets	~56%
Notebook PCs	~50%
Wireless earphones	~29%
Smart speakers	~26%
Smartwatches	~23%
Wireless headphones	~21%
Fitness bands	~18%
Truly wireless earbuds	~15%
Other	~2%

Smartphones, tablets and notebook PCs are top three devices that Europeans use. They are devices that form touchpoints that help users to perform tasks throughout the day.
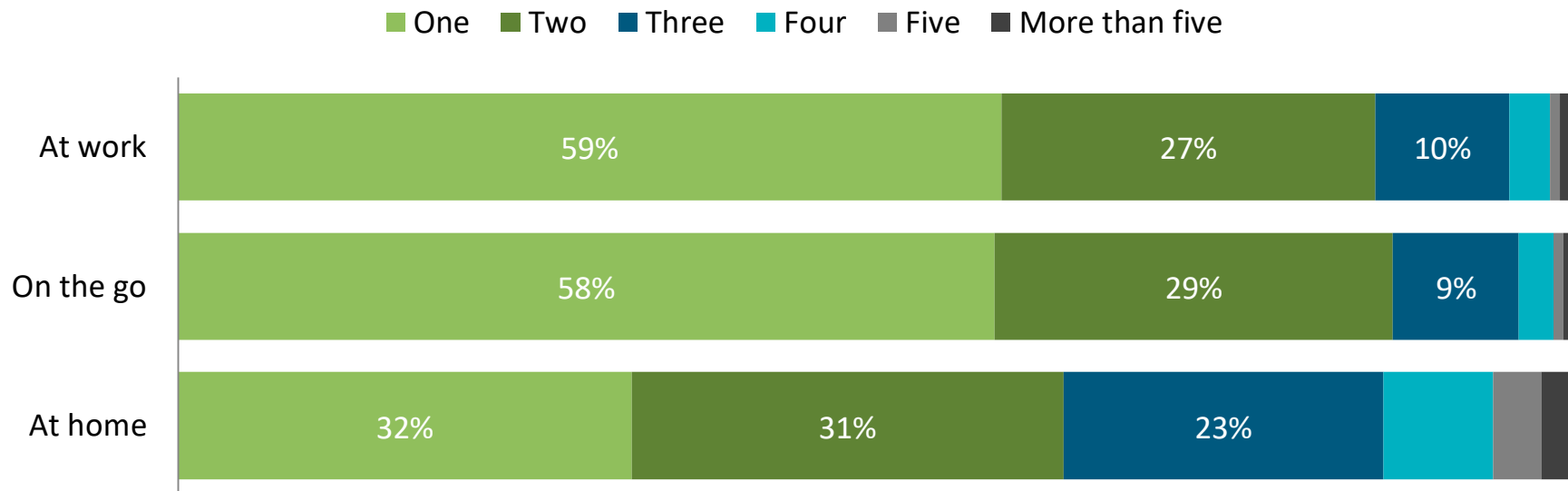
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How important are your devices to your daily life? (all countries)

■ Extremely important ■ Very important ■ Somewhat important ■ Not so important ■ Not at all important

Device	Extremely important	Very important	Somewhat important	Not so important
Smartphones	58%	28%	12%	
Notebook PCs	42%	36%	18%	4%
Smartwatches	24%	36%	30%	9%
Truly wireless earbuds	22%	34%	33%	9%
Fitness bands	22%	38%	29%	10%
Tablets	22%	34%	29%	14%
Wireless earphones	20%	35%	33%	11%
Wireless headphones	20%	35%	29%	14%
Smart speakers	16%	30%	35%	17%

Tablets may be Europeans' second most-used device, but in terms of importance, they rank below smartwatches, truly wireless earbuds and fitness bands. This signals that users see higher value in wearables and truly wireless earbuds.

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How many smart devices do you typically carry or use when you are in the following scenarios? (all countries)

■ One   ■ Two   ■ Three   ■ Four   ■ Five   ■ More than five

Scenario	One	Two	Three
At work	59%	27%	10%
On the go	58%	29%	9%
At home	32%	31%	23%

Across all surveyed countries, almost 60% of users carry only one device when they are away from home. When users are at home, 68% of users will use two or more devices. Devices that users use at home are expected to be those that offers rich user interactions, including TVs, PCs and smart speakers.

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Smartwatches and fitness bands

What is your main reason for buying a wearable device?

UK
42.9% use wearable device

Italy
34.1% use wearable device

France
25.4% use wearable device

Russia
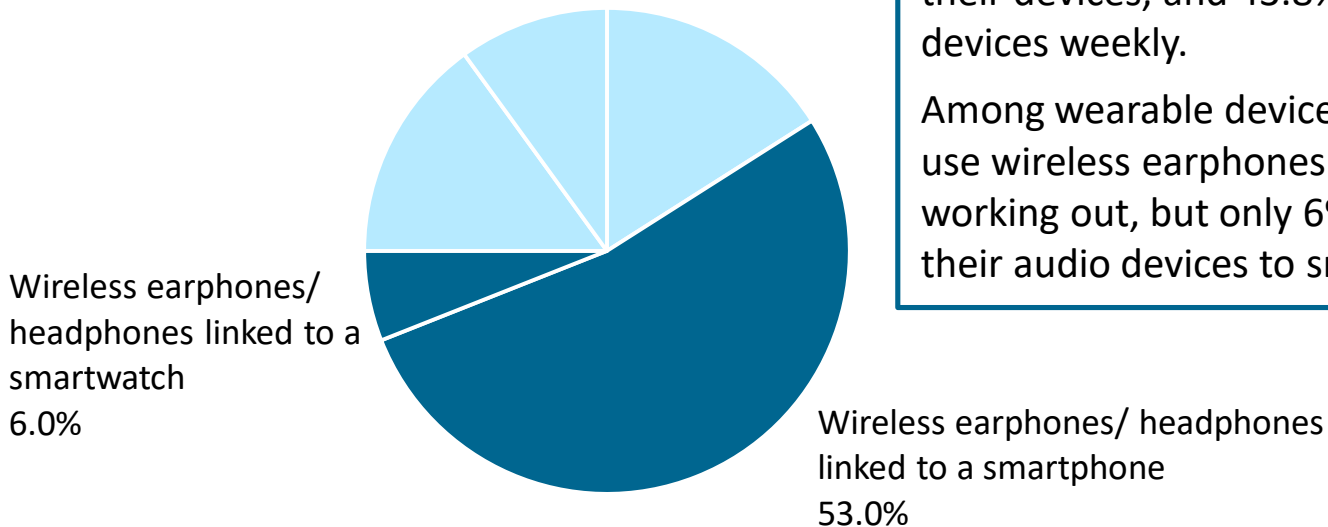55.0% use wearable device
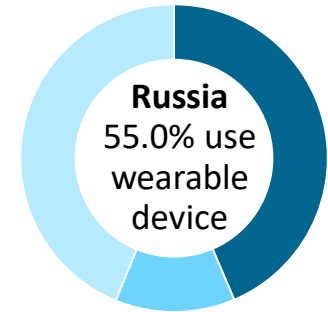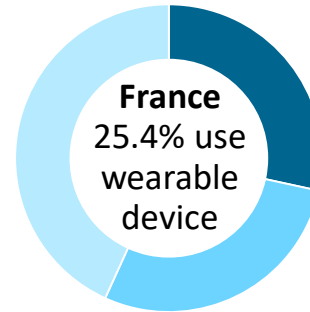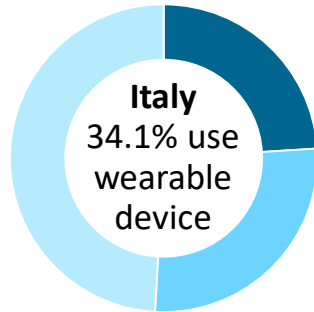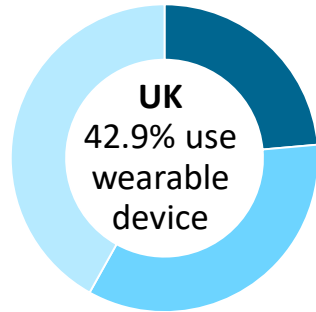
■ To improve my wellbeing   ■ To improve my fitness   ■ Other

Across all surveyed countries, more than half of respondents who own wearable devices cited improving wellbeing and fitness levels as the key reasons for the purchase. Russia stood out as the country with most wearable users, with almost half of the respondents highlighting the importance of improving wellbeing as a key purchase driver.

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How do you listen to music or audio content when exercising? (Russia)

Wearable owners are highly active. Among Russian respondents who own wearable devices, 41.2% of users workout daily with their devices, and 43.8% workout with their devices weekly.
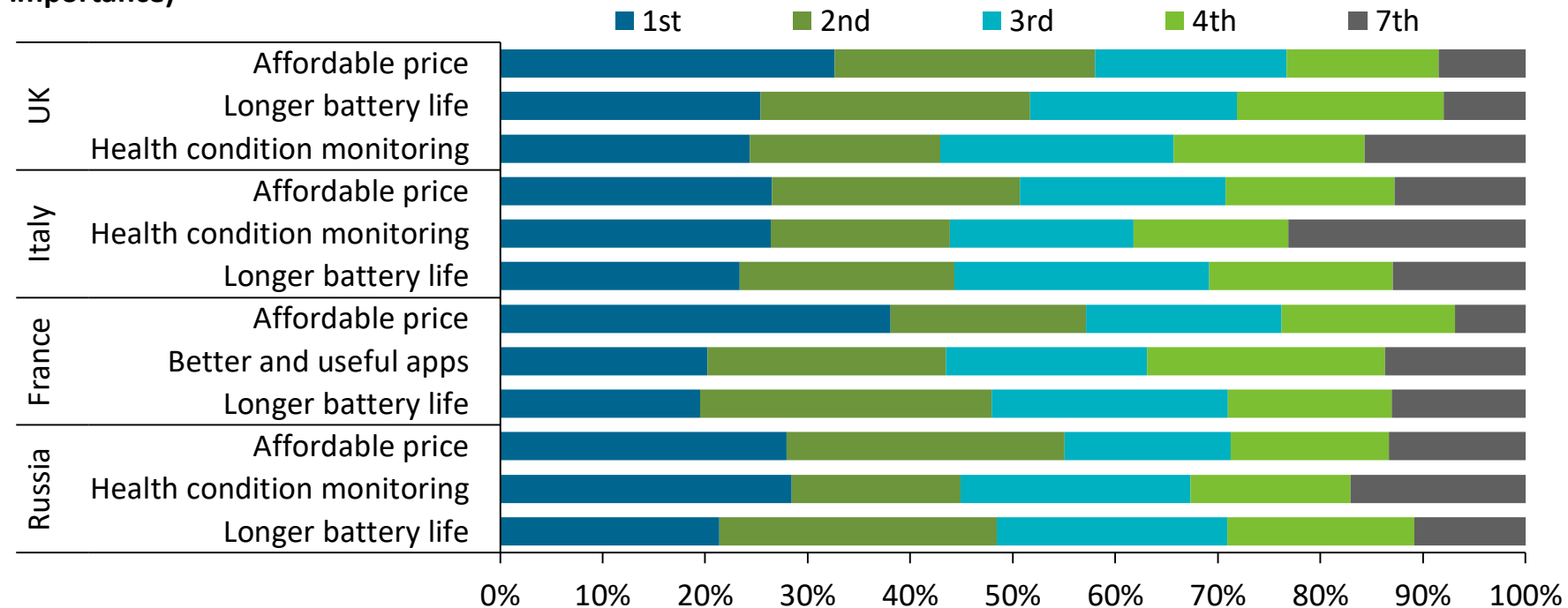
Among wearable device owners, 59% of users use wireless earphones or headphones while working out, but only 6% of users connect their audio devices to smartwatches.

Wireless earphones/ headphones linked to a smartwatch
6.0%

Wireless earphones/ headphones linked to a smartphone
53.0%

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Do you need your wearable device to perform the following tasks? (Russia)

Among active wearable device users, more than half stated that they definitely need their wearable devices to be able to stream music directly to their wireless earphones or headphones.
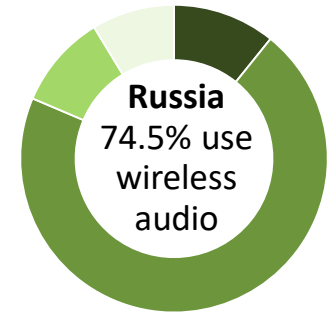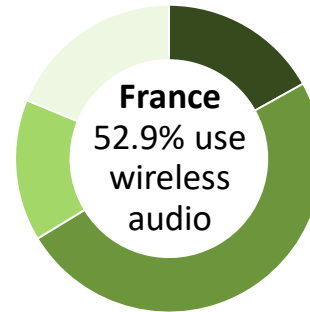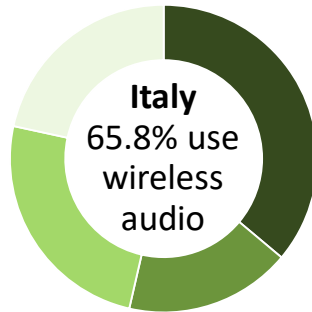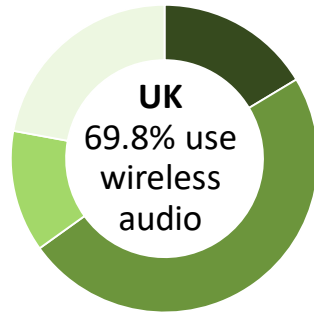
Definitely need
56.4%
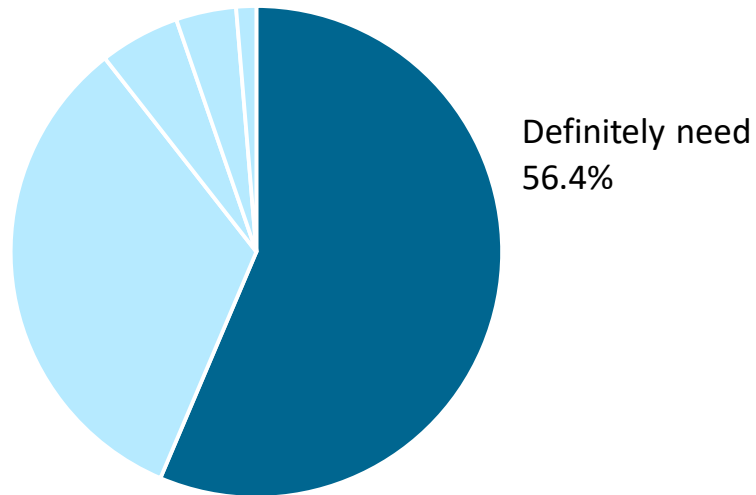
Which features would compel you to buy a wearable device in the future? (all countries – top three ranked by importance)

Legend: ■ 1st ■ 2nd ■ 3rd ■ 4th ■ 7th

UK
- Affordable price
- Longer battery life
- Health condition monitoring

Italy
- Affordable price
- Health condition monitoring
- Longer battery life

France
- Affordable price
- Better and useful apps
- Longer battery life

Russia
- Affordable price
- Health condition monitoring
- Longer battery life

X-axis: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Health condition monitoring, including blood pressure and blood sugar, ranked high as the feature that will compel their next purchase among users from the UK, Italy and Russia. Above all, consumers want affordable wearable devices.

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Smart personal audio devices

What is the main reason for buying wireless earphones, wireless headphones or truly wireless earbuds?

UK
69.8% use wireless audio

Italy
65.8% use wireless audio

France
52.9% use wireless audio

Russia
74.5% use wireless audio

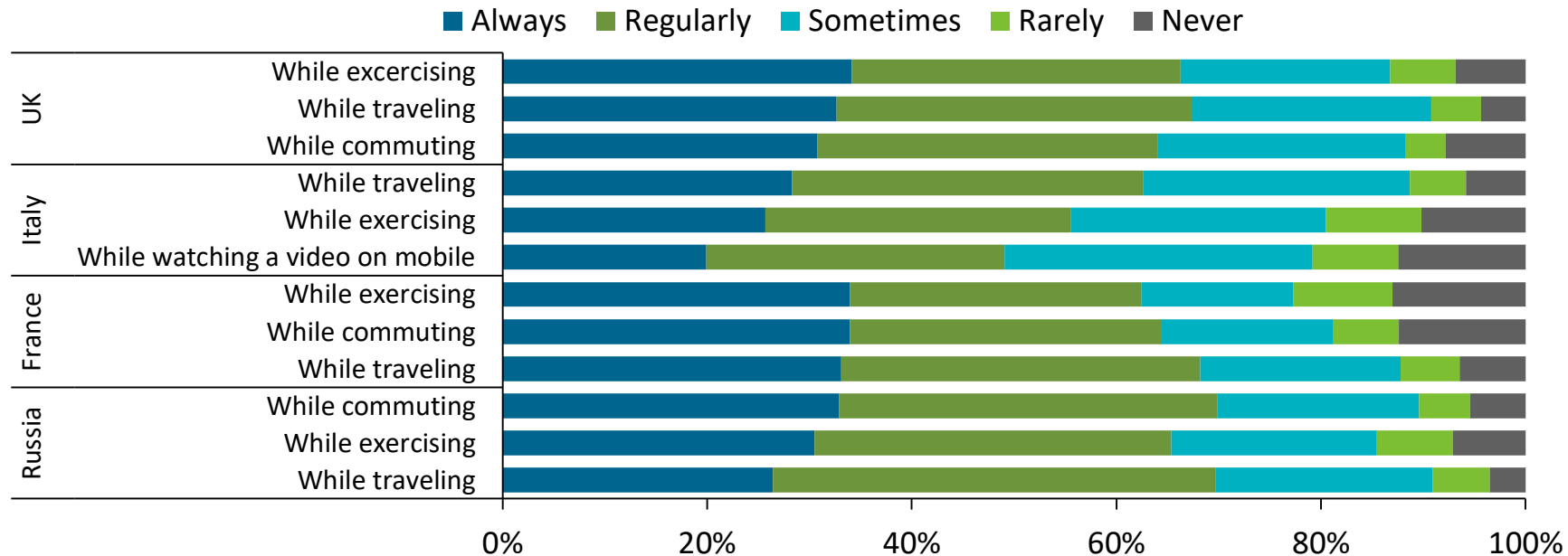- They offer better sound quality than my bundled earphones
- More convenient than wired earphones or headphones
- They offer more features than wired earphones or headphones
- Other

Across all surveyed countries, respondents in the UK, France and Russia cited convenience as the key reason for buying wireless earphones, wireless headphones or truly wireless earbuds. Italian users stood out as user purchase decisions were driven by improved sound quality and additional features that such devices provide.
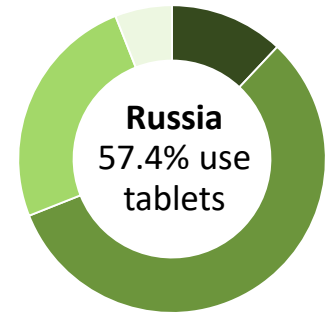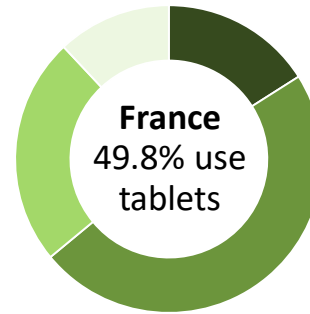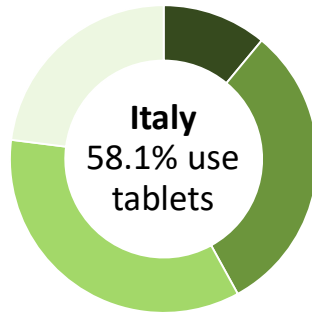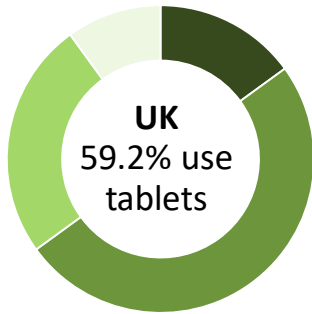
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How often do you use wireless headphones, wireless earphones or truly wireless earbuds to listen to content while you engage with the following activities? (all countries – top three ranked by frequency of use)

Legend: ■ Always ■ Regularly ■ Sometimes ■ Rarely ■ Never

UK
- While excercising
- While traveling
- While commuting

Italy
- While traveling
- While exercising
- While watching a video on mobile

France
- While exercising
- While commuting
- While traveling

Russia
- While commuting
- While exercising
- While traveling

X-axis: 0% 20% 40% 60% 80% 100%

Smart personal audio devices are often used while users are on the go, engaging with activities such as exercising, traveling and commuting. But smart assistant integration in such devices is deemed unimportant by users. Users still prioritize base functionality, such as enhanced sound quality and longer battery life.

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Tablets

Choose one option that best describes the tablet you are currently using.

UK
59.2% use tablets

Italy
58.1% use tablets

France
49.8% use tablets

Russia
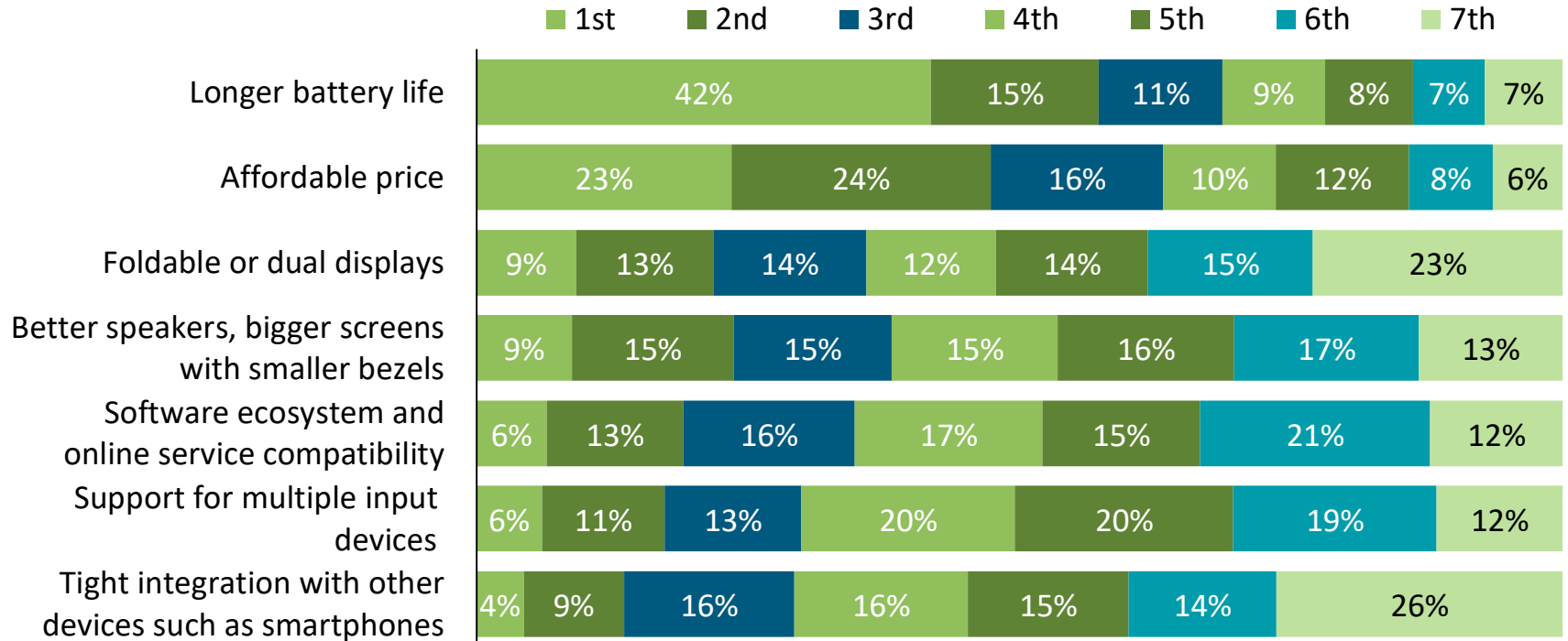57.4% use tablets

- My tablet is not older than three months
- My tablet is more than a year old
- My tablet is more than three years old
- My tablet is more than five years old

Italy stood out as users hold onto their tablets for a longer time, with 58% of users using tablets that are three years old or more. On average, 76% of users from the UK, Russia and France have tablets that are under three years old.
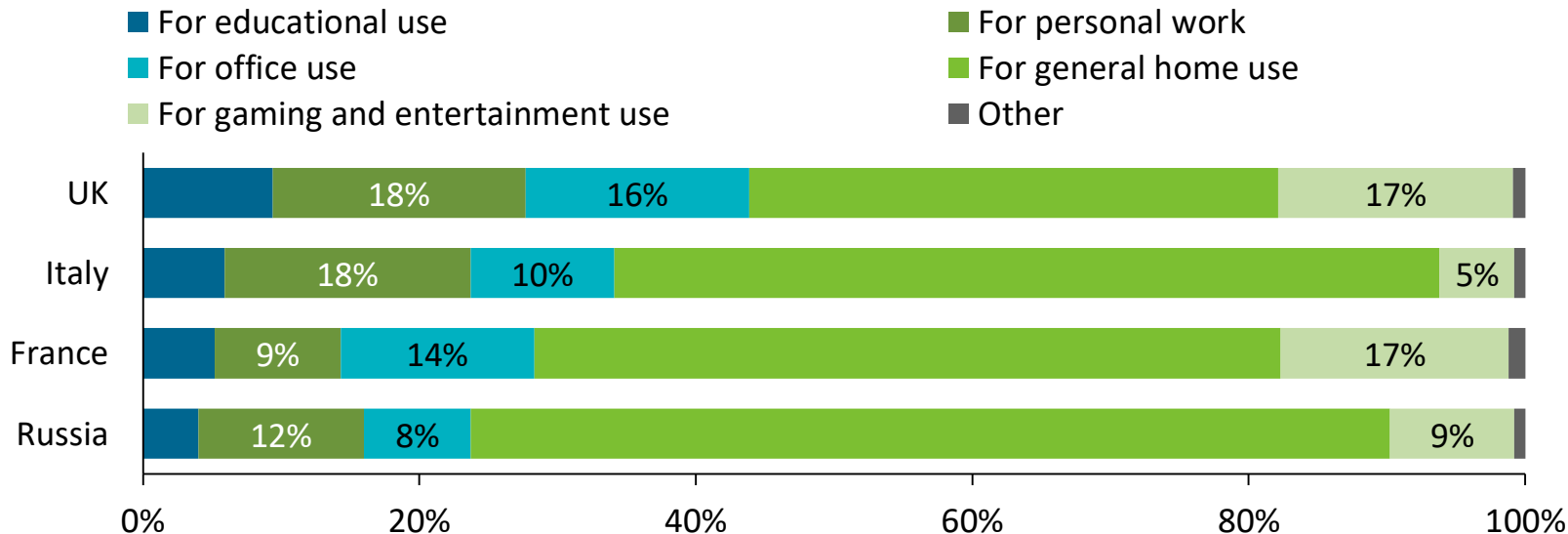
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Which features would compel you to buy a tablet in the future? (all countries, ranked by importance)

Legend: ■ 1st ■ 2nd ■ 3rd ■ 4th ■ 5th ■ 6th ■ 7th

Feature	1st	2nd	3rd	4th	5th	6th	7th
Longer battery life	42%	15%	11%	9%	8%	7%	7%
Affordable price	23%	24%	16%	10%	12%	8%	6%
Foldable or dual displays	9%	13%	14%	12%	14%	15%	23%
Better speakers, bigger screens with smaller bezels	9%	15%	15%	15%	16%	17%	13%
Software ecosystem and online service compatibility	6%	13%	16%	17%	15%	21%	12%
Support for multiple input devices	6%	11%	13%	20%	20%	19%	12%
Tight integration with other devices such as smartphones	4%	9%	16%	16%	15%	14%	26%

The relatively low importance of software ecosystem, support for multiple input devices, and tighter integration with smartphones shows that European users are not intending to buy tablets to use as productivity tools.
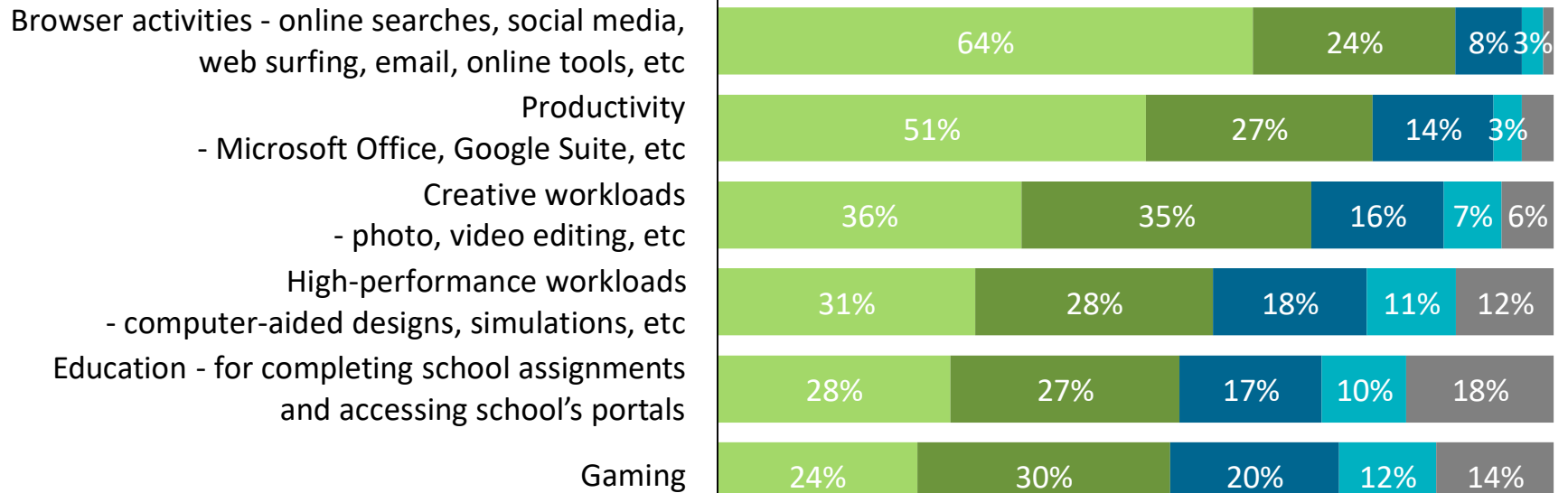
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Notebook PCs

Choose one option that best describes the notebook PC you are using most frequently.

- ■ For educational use
- ■ For personal work
- ■ For office use
- ■ For general home use
- ■ For gaming and entertainment use
- ■ Other

The UK and France have two groups of notebook PC users with similar use cases: 17% of notebook PC users use their notebooks for gaming and entertainment, and around 15% of users bring home their office notebook PCs.

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Do you need your notebook PC to perform the following tasks? (all countries, ranked by needs)
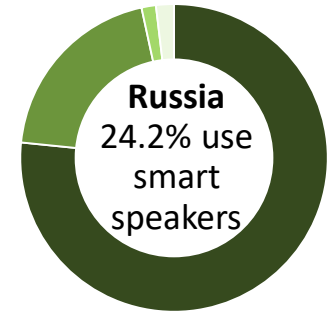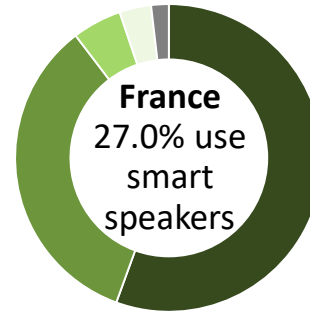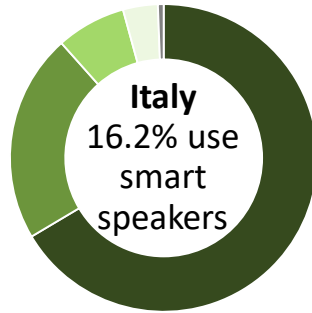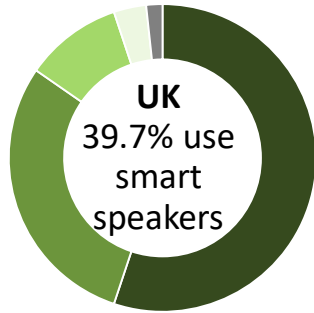
Legend: ■ Definitely need ■ Probably need ■ Neutral ■ Probably don't need ■ Definitely don't need

Task	Definitely need	Probably need	Neutral	Probably don't need	Definitely don't need
Browser activities - online searches, social media, web surfing, email, online tools, etc	64%	24%	8%	3%	
Productivity - Microsoft Office, Google Suite, etc	51%	27%	14%	3%	
Creative workloads - photo, video editing, etc	36%	35%	16%	7%	6%
High-performance workloads - computer-aided designs, simulations, etc	31%	28%	18%	11%	12%
Education - for completing school assignments and accessing school's portals	28%	27%	17%	10%	18%
Gaming	24%	30%	20%	12%	14%

A majority of respondents have a notebook PC at home for general use, with more than half of users using their notebook PC regularly. But with browser activities and productivity tools being one of the top notebook tasks, the larger notebook screen and keyboard combination still trumps mobile devices in such use cases.

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Smart speakers

How many smart speakers do you own?

UK
39.7% use smart speakers

Italy
16.2% use smart speakers

France
27.0% use smart speakers

Russia
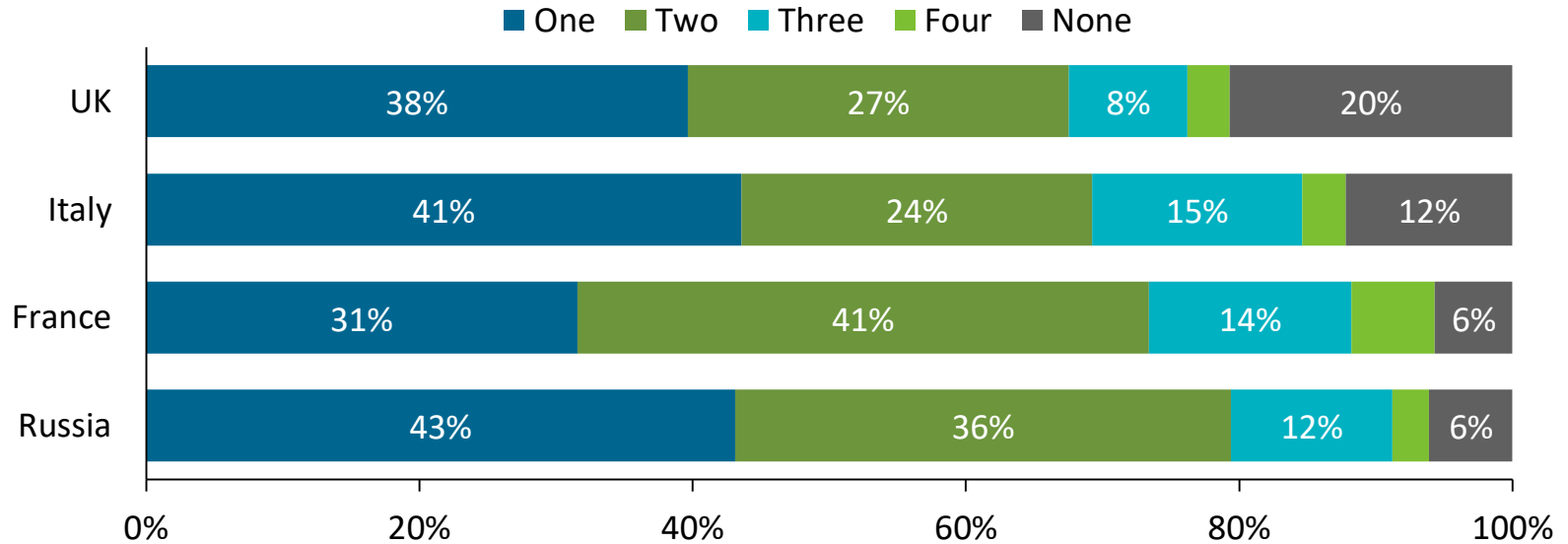24.2% use smart speakers

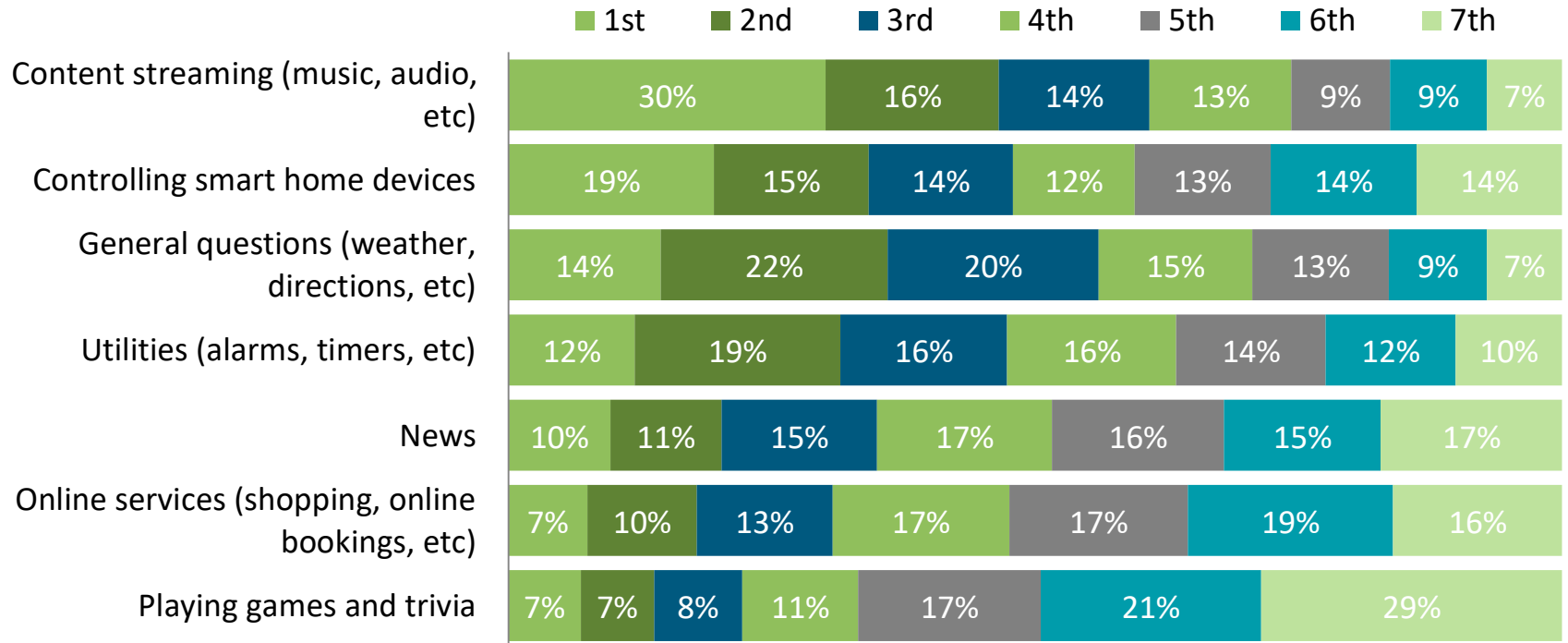■ One   ■ Two   ■ Three   ■ Four   ■ Five or more

The UK stood out as one of the countries with the highest level of smart speaker adoption, with 39.7% of UK respondents having used smart speakers. UK smart speaker owners also have more smart speakers at home – 1.67 speakers per user on average according to the responses.

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How many smart devices or smart appliances are connected to your smart speaker?

Legend: One | Two | Three | Four | None

Country	One	Two	Three	Four	None
UK	38%	27%	8%		20%
Italy	41%	24%	15%		12%
France	31%	41%	14%		6%
Russia	43%	36%	12%		6%

The UK is assumed to have one of the highest penetrations of smart home devices and appliances, due to its higher living standards. But 20% of UK respondents who use smart speakers have no smart devices or smart appliances connected to their smart speakers.

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Which smart speaker features are the most important to you? (all countries, ranked by importance)

Legend: 1st | 2nd | 3rd | 4th | 5th | 6th | 7th

Feature	1st	2nd	3rd	4th	5th	6th	7th
Content streaming (music, audio, etc)	30%	16%	14%	13%	9%	9%	7%
Controlling smart home devices	19%	15%	14%	12%	13%	14%	14%
General questions (weather, directions, etc)	14%	22%	20%	15%	13%	9%	7%
Utilities (alarms, timers, etc)	12%	19%	16%	16%	14%	12%	10%
News	10%	11%	15%	17%	16%	15%	17%
Online services (shopping, online bookings, etc)	7%	10%	13%	17%	17%	19%	16%
Playing games and trivia	7%	7%	8%	11%	17%	21%	29%

Overall, content came first, with smart home controls ranked second in terms of importance of smart speaker features, except in Italy, where controlling smart home devices and general questions ranked first and second respectively.

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Conclusions and recommendations

Key challenges and opportunities

Intelligent living is about having smart devices, software and services interconnected and working together seamlessly to form an ecosystem surrounding the user. While ecosystems are being established, current features and use cases are still driven by siloed devices with little intelligence involved.

The potential to uncover ecosystem-driven use cases is vast, yet it is challenging to break the confines of individual devices. In order to overcome this, we expect a shift of vendor device strategy to focus on enhancing device integration capabilities to form ecosystems, while embedding additional layers of utility, entertainment, social and other elements to spur the creation of appealing use cases.

Smart devices big and small are expected to become sensors that are able to sense and learn about their surroundings and provide information constantly to provide actionable intelligence to smart assistants, in turn to provide true intelligent living experiences to users.

In a bid to populate and build a large installed base so devices can collect data, consumer smart devices and IoT sensors are being made highly accessible with lower price points, making it a challenge to existing business models. Canalys expects vendors to experiment with different business and revenue models, focusing on a guarantee of service so users can grow to rely on the new-generation cloud services provided through the devices.

Privacy and data security will remain the key challenge, not only in Europe, but globally. Europe is expected to spearhead global privacy standards, with a more stringent framework to ensure user data protection is achieved, while ensuring AI and machine learning technologies can be deployed and used in a progressive manner. For wide interoperability to be achieved, issues surrounding privacy and data protection need to be addressed promptly, so industry players can focus on enabling interoperability across devices, apps and smart assistant platforms.

Europe's diverse population, languages, culture and varying user demands, sometimes occurring all at once in a single country, will become a challenge for vendors to reach scale quickly with their devices and solutions. To really understand the local needs, device vendors and ecosystem players are expected to invest and work together rigorously. Success in setting up a robust structure to tackle this issue means that vendors can emulate this structure in other diverse regions, such as Asia Pacific, and expect to achieve a similar level of success.

The ultimate challenge is to create meaningful use cases that are a joy to use. These use cases are vital to justify the additional investment made by consumers, and only devices that are truly helpful will remain in use for a long period of time.

What are the factors that will ensure you choose devices from the same brand?

- ☐ Extremely important
- ☐ Very important
- ☐ Somewhat important
- ☐ Not so important
- ☐ Not at all important

- Appealing bundles at affordable price points
- Seamless integration with same-brand devices
- Unique features when linked to same-brand devices
- It's a well-known brand
- Special access to services provided by the brand
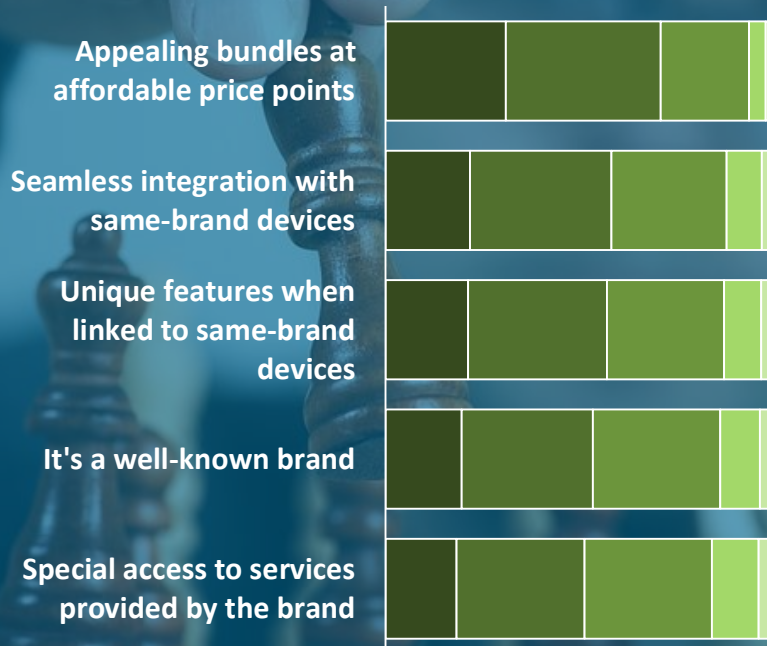
What can smart device vendors do?

A robust ecosystem strategy can help device vendors create the competitive advantage they are looking for. But device vendors must firstly identify the role they want to play within the ecosystem, be it a platform leader or an active player flourishing in the ecosystem with devices or solutions. This must be aligned with an updated business model to complement the overall strategy.

Device vendors should use partnerships to extend their capabilities, from components to software and services, to improve inter-device capabilities. Device vendors require additional avenues for feature improvements, and partners will be able to provide access to datasets that vendors do not possess for such purposes.

It is important to extend partnerships to ecosystem hardware partners, forming stronger alliances and platforms that encourage innovation. Certain use cases can only be uncovered by working with third-party developers, and it is essential that vendors take the initiative to drive synergies between key industry players as well as third-party developers.

Finally, an adaptive go-to-market strategy is needed, which focuses on educating end users and making devices and use cases highly visible. This will ensure that the core message of intelligent living via device ecosystems can be delivered effectively.

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Conclusions

The consumer survey shows that 58% of users carry only one device while they are on the go, hinting that European users have yet to fully assimilate the intelligent ecosystem lifestyle. But 84% of respondents show a likelihood of buying a smart device other than a smartphone. This signifies great market opportunities for smart device vendors, as most users are ready to be exposed to the positive lifestyle changes that intelligent ecosystem devices can bring.

The persistent long-term goal for industry players is to push for the ambient computing and intelligent environment paradigm. There are considerable challenges to overcome to reach that goal, but it starts from designing smart devices to work seamlessly together right now, benefiting society one small step at a time.

Intelligent living

in Europe

February 2020

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