



TECH TRENDS

2017

WELCOME TO TECH TRENDS 2017

... our definitive guide to the technologies that will shape consumers' lives in the coming year.

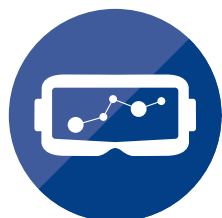
In a departure from past practice, this year we've focused on five trends initially. We will add to them during the year, so we can keep you as up to date as possible with the most important trends.

We predict mobile payments will extend their reach in the US and Western Europe this year, driven as much by consumers' desire for an improved retail experience as their need to be cashless. Virtual and augmented reality will start to make their mark on retail – and many other industries – as brands and businesses realize their capabilities. Smart home looks set to expand

beyond the smart TV, although autonomous vehicles have some way to go to reach anything like mass market adoption. Finally, our experts warn not to dismiss wearables. This is a market that consumers have embraced, and that will continue to grow as fashion brands move into it.

Our experts gather annually to debate the topics for Tech Trends, our most popular publication. At the heart of those meetings is our objective to interpret what technology means for – and to – consumers. This year we hope you will have more of a voice in those discussions, and telling us which technologies to include in our updates.

CONTENT



4 VIRTUAL AND AUGMENTED REALITY



10 WEARABLES



16 MOBILE PAYMENTS



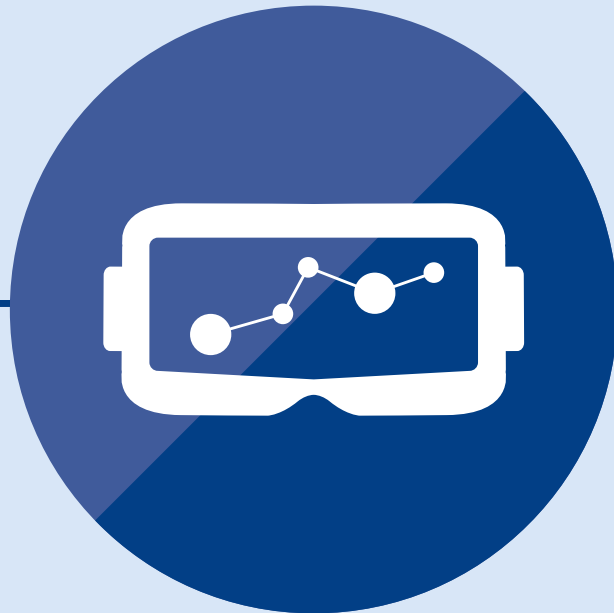
22 AUTONOMOUS VEHICLES



26 SMART HOME

VIRTUAL AND AUGMENTED REALITY





VIRTUAL AND AUGMENTED REALITY: THE TIME IS NOW (YES, REALLY)



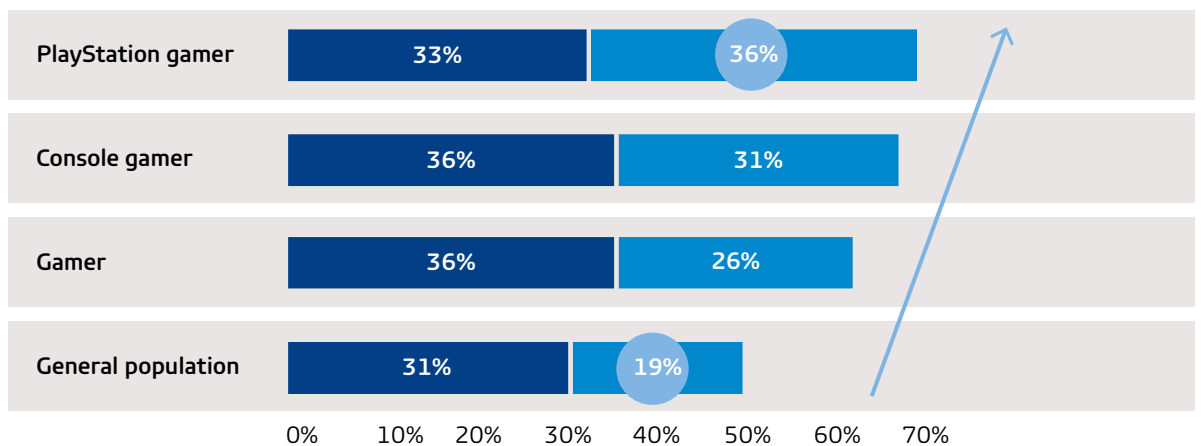
Warning: you may have heard this before, but we really do think 2017 is the year that virtual and augmented reality (VR and AR) will start to achieve mass market status. 2016's successful launch of PlayStation VR has paved the way for the big tech players to develop and grow the market: Facebook, Google and Microsoft all have their eyes on the prize. However, consumers will need to understand how they can incorporate these forms of reality into their personal and professional lives before we will see anything like mass market adoption.

In research we carried out in the UK in 2016, planned to coincide with the launch of PlayStation VR, over a third of consumers said they found the concept of VR "very appealing". So, what's holding back everyone else? The top reason is the price of VR headsets (73%), followed by the price of other hardware (64%), safety concerns around using VR outside the home (61%), worries about VR devices excluding others from sharing the experience (44%), and nervousness around VR consuming attention. Although much reported in the media, concerns about motion sickness were expressed by only 33% of players (lower than we expected), and advertising worried only 26% of respondents. So why do we think 2017 will be the year when the hype becomes reality for VR?

Over a third of PlayStation gamers find VR "very appealing"

How appealing do you find the idea of owning a virtual reality device?

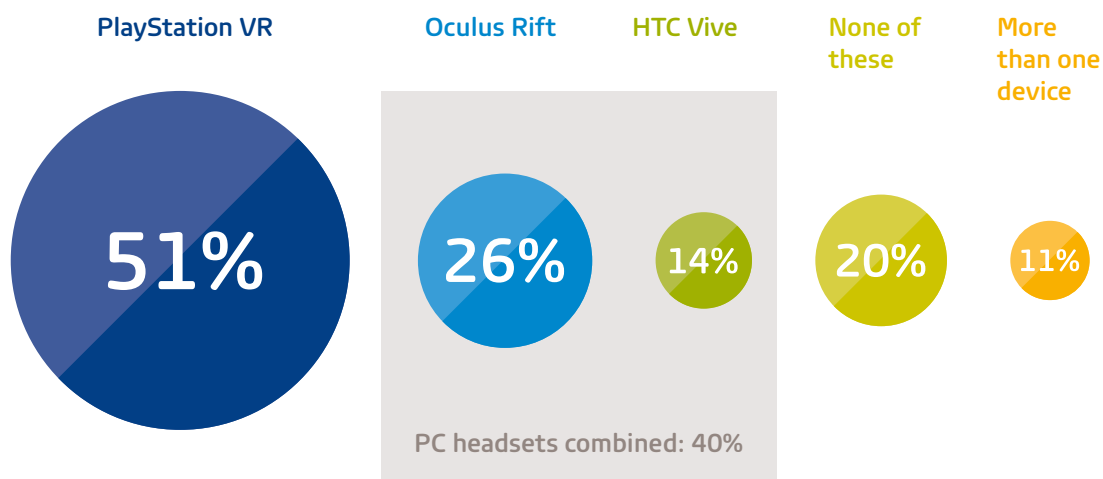
Very appealing Fairly appealing



Source: GfK quantitative online survey amongst 1,268 consumers 18+ in UK, 2016

- Firstly, **VR is becoming more widely available to consumers.** In addition to PlayStation VR, there is HTC Vive and Oculus Rift, both offering high-end gaming experiences. More affordable and widely available smartphone options include Google DayDream and Samsung Gear, both of which will be upgraded and improved in the near future. With the spending power of big and trusted technology brands behind VR, and continual improvements being made to the user experience, consumer demand will grow.
- **More industries will seek to maximize the power of VR.** Content developers everywhere will be concentrated on enhancing every experience, from shopping to traveling, learning to healthcare and well-being. To move VR from a position of hype and niche interest to one that is mainstream, it's important that the focus is always on offering an enhanced experience over and above the "real thing". And for gamers who have adopted VR already, it's vital to provide them with more content to keep them engaged.

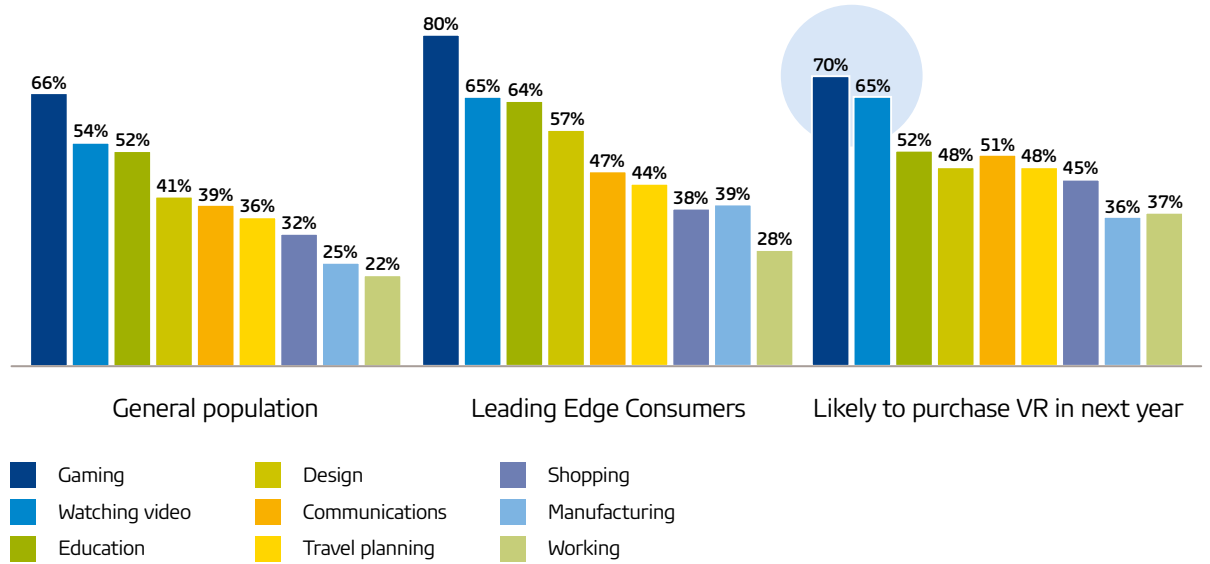
PlayStation VR is the most desired VR device
Device purchase intention in the next 12 months



Source: GfK quantitative online survey amongst 1,268 consumers 18+ in UK, 2016



The potential usefulness of VR expands beyond gaming into video and education
 Areas in which VR technology could be useful (% stating)



Source: GfK quantitative online survey amongst 1,268 consumers 18+ in UK, 2016

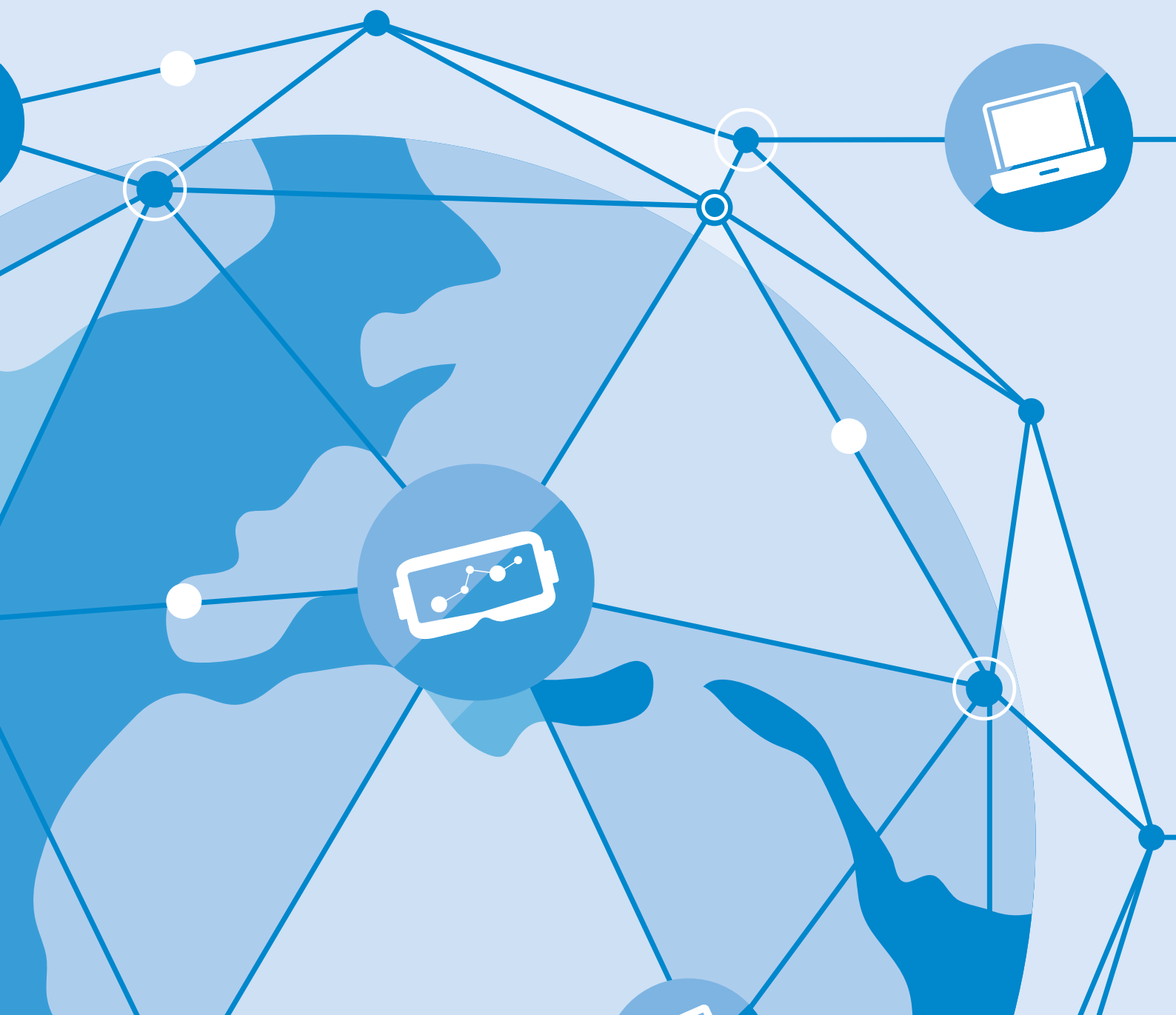
- As with all technology, a **good consumer experience is key to mass market adoption.** Brands, businesses and other organizations looking to use VR must understand consumer needs if they are to meet them successfully. They will want to ensure that the technology is easy to incorporate into everyday life and offers people genuine benefits.
- VR is only the beginning.** It will provide the platform from which to develop AR and blended reality experiences.

Paul Simpson, our VR and AR expert, says:

“To date it has been difficult, perhaps impossible, for consumers to imagine how VR and AR might fit into their lives. We believe something changed with the launch of PlayStation VR last year, albeit amongst a small – but influential – group of consumers. For the first time, people had an exceptional VR experience, and many more people heard about it. This has provided the opportunity for brands, businesses and other organizations to apply the capabilities of VR. Indeed, the upcoming launch of Microsoft’s HoloLens will mark the beginning of the tech giant’s AR offering. From retail to travel, education to health, design to media and entertainment, consumers are ready for a fresh, new approach. We believe 2017 will be an exciting time and real turning point for both VR and AR.”



WEARABLES





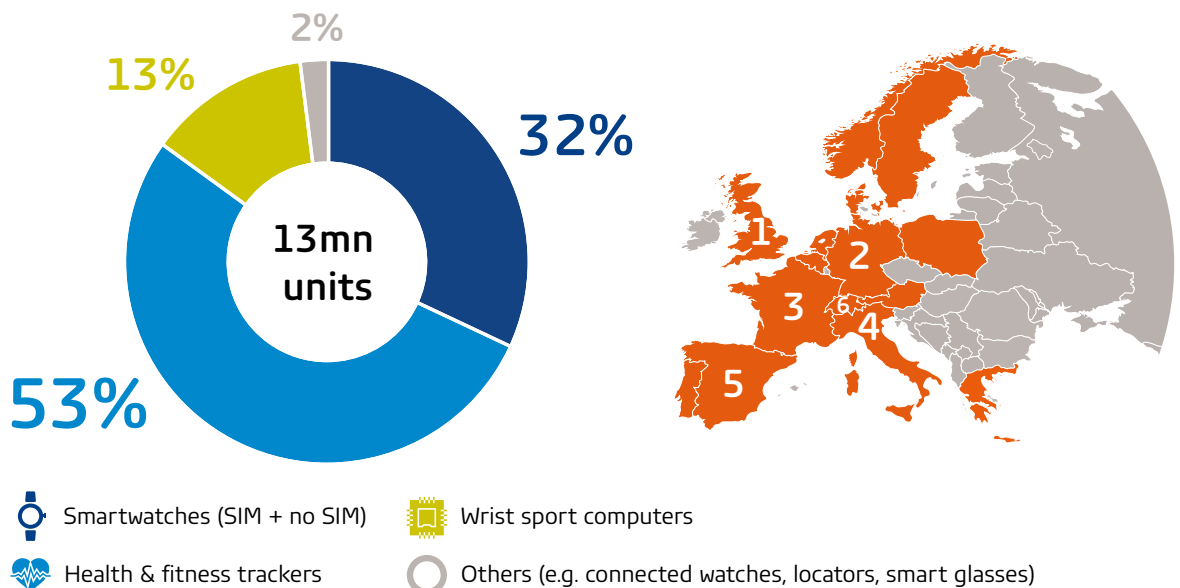
WEARABLES, WEARABLES, WHEREFORE ART THOU WEARABLES?



Wearables were heralded as the next big consumer tech market. But 2017 started with one of the leading players cutting its global workforce, and many of the big tech companies have either avoided or exited the market. So, is this an example of an over-hyped, under-performing consumer tech market? Here's our take:

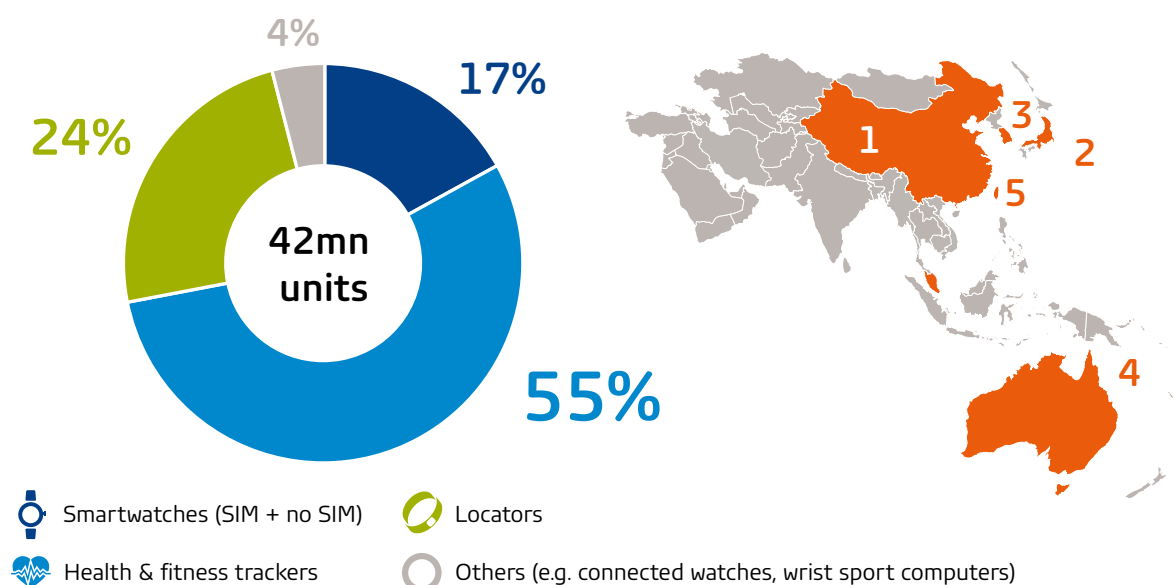
In our 2016 survey carried out in 16 countries, one third (33%) of people told us they track or monitor their health or fitness via an online or mobile application, fitness band, clip or smartwatch. In China, it's 45%, followed by 29% in both the US and Brazil, 28% in Germany and 26% in France. Our point-of-sale figures show that the market for wearables is enjoying healthy double-digit growth. From January to December 2016, the European market (16 countries tracked) increased 45% to reach a volume 13 million devices.

Wearables in Europe grow +45% Jan-Dec 2016
GB remains the largest market



Source: GfK Point of Sales Tracking 2016, estimated total market: 16 European countries

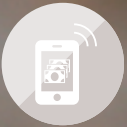
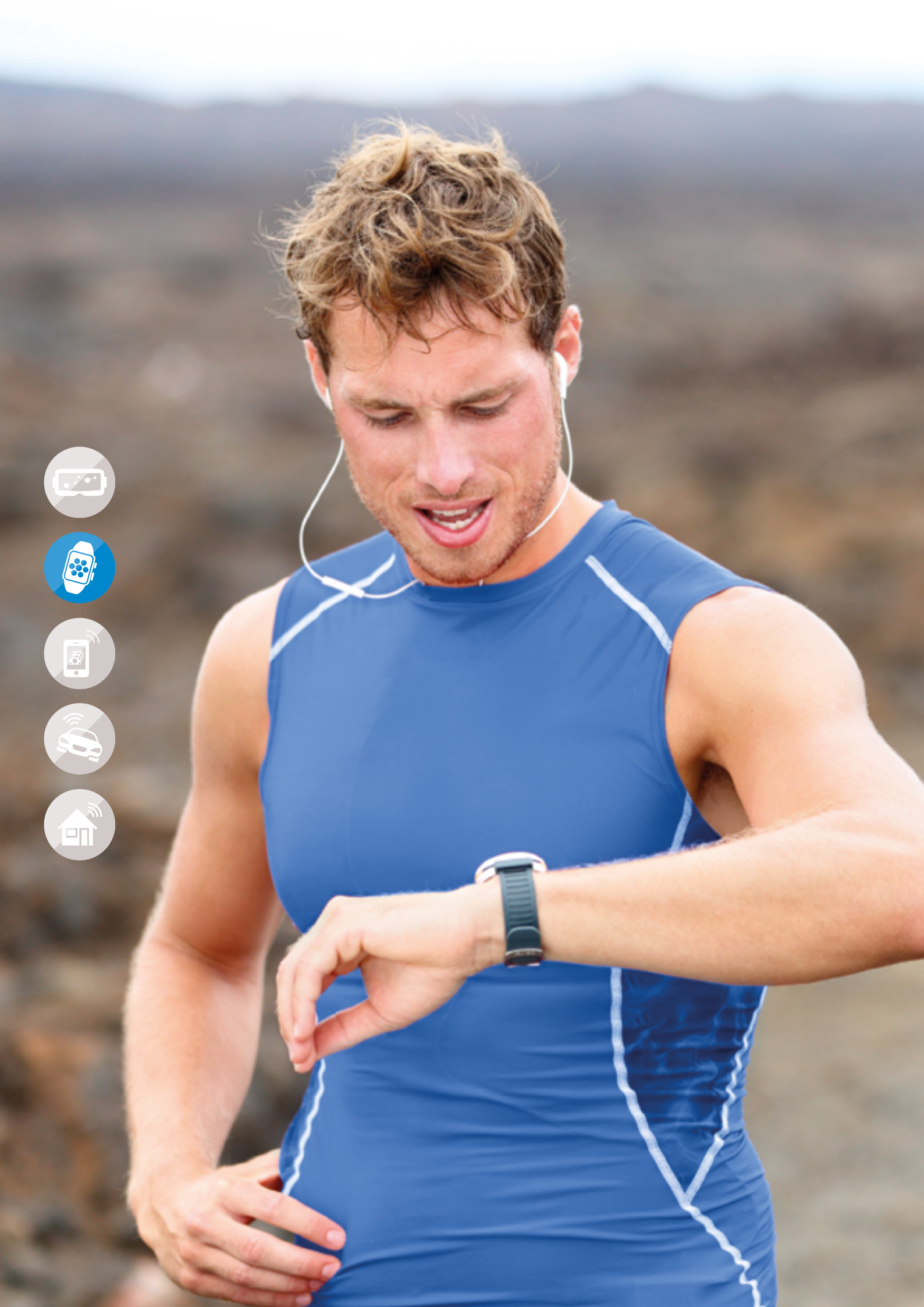
Wearables in ASIA grow +51% in 2016
 KR becomes the 3rd largest market in the region replacing AU



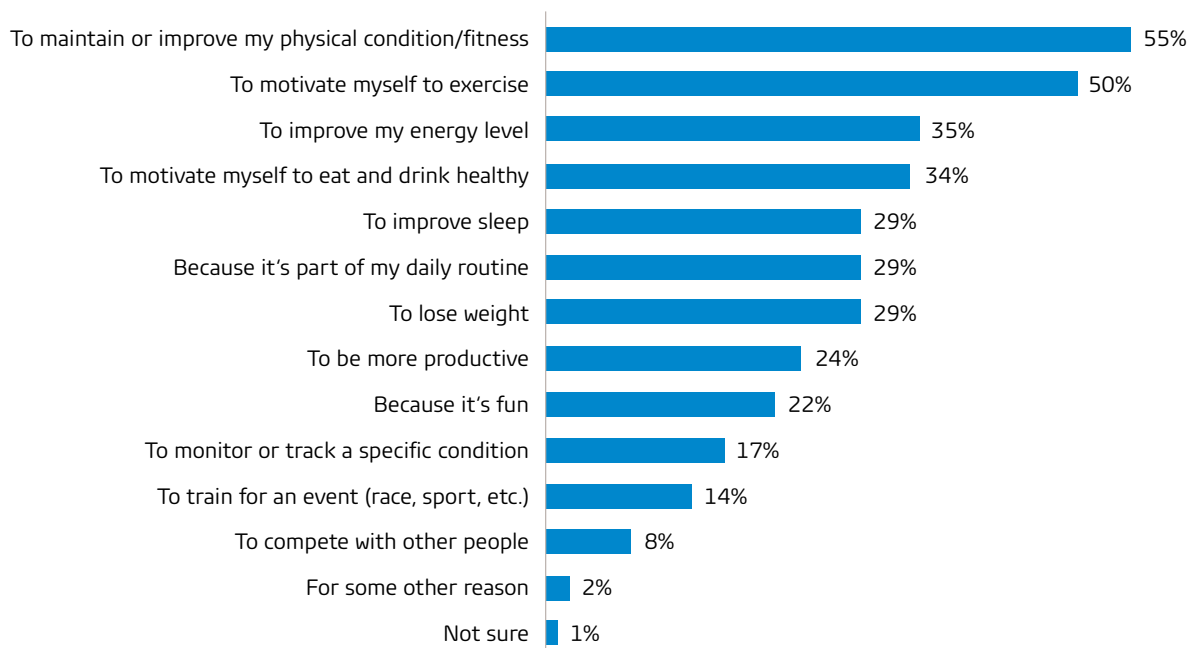
Source: GfK Point of Sales Tracking 2016, estimated total market: 8 Asia-Pacific countries

So, the market for wearables isn't insignificant – but it is clearly not meeting the high expectations some commentators and players had initially hoped for. Certainly, the wearables market is unlikely to replace the missing revenues created by falling sales of other devices like tablets and smartphones. However, we believe there is more opportunity for volume and value growth in this market. Here's what needs to happen to grow this market further:

- Tap into the trend for monitoring health and fitness**
 Our research suggests that consumers have a genuine interest in monitoring their own well-being – from their exercise levels to their sleep patterns and calorie consumption. Of those people using health and fitness trackers, over half (55%) said that one of their reasons for doing so was “to maintain or improve my physical condition and fitness”, making this the most popular answer. However, it's not just sports fanatics who are using the devices. Our research has identified that an appetite for wearables exists right across the age spectrum. We believe there is an opportunity to bring more people – both new and lapsed users – into the health and fitness monitoring market. As devices evolve, growing the market should become easier.



Reasons for tracking health or fitness



Source: GfK quantitative online survey amongst 4,900+ Internet users aged 15+ in 16 countries who currently track their health or fitness; multiple answers allowed, 2016

- **Why designer brands could be game-changers**

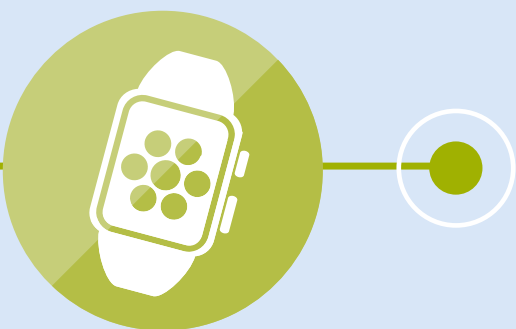
Early models of smartwatches were cumbersome and ugly. Consequently, they mainly appealed to early adopters and Leading Edge Consumers (LECs). However, designer watch brands have now entered the market. Several labels have launched sports and fitness smartwatches that look just like regular watches. Their appealing design and wide-ranging price points make them far more attractive to the mass market. With fashion brands powering the market in this way, we believe we will start to see smartwatches on more wrists.

Our wearables expert, Jan Wassman, says:

“The wearables market may have failed to achieve the hype that surrounded the birth of the market, but that isn’t the whole story. Consumer demand is there – whether it’s apparent or latent. The entry of designer brands into the smartwatch category as well as consumers’ increasing interest in monitoring their own health and fitness levels have the potential to grow the size and value of the market. Manufacturers and retailers need to understand the real-life users of wearables. What do they use and why? This is the basis for evolving the market and tailoring it to a varied audience to increase appeal.”

MOBILE PAYMENTS





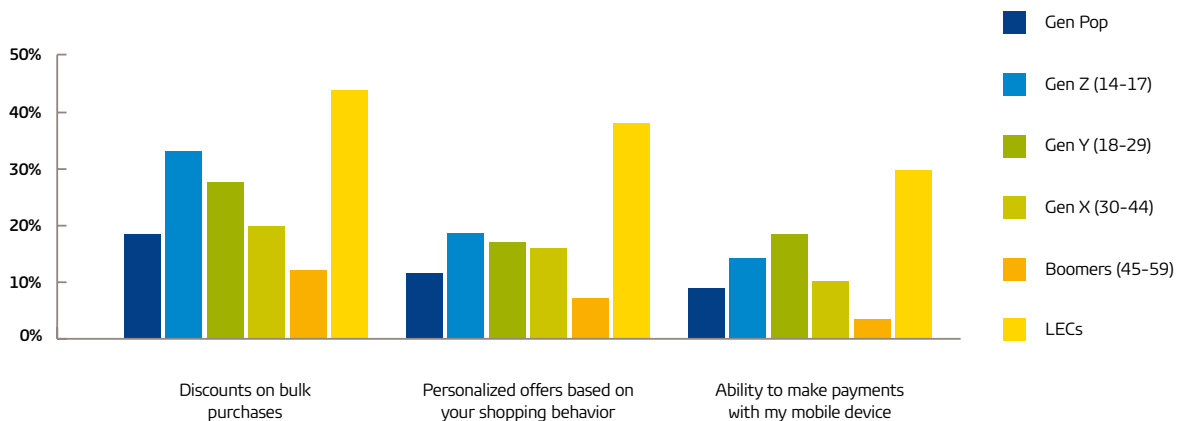
MOBILE PAYMENTS WILL REVOLUTIONIZE RETAIL

The march of mobile payments is happening at different speeds across the world. Despite this, we're starting to see its ability to transform the retail experience. Added to the simplicity of payment are numerous benefits for shoppers: avoiding queues, centralizing loyalty rewards, checking stock, ordering ahead, enjoying customized offers and easy price comparison. In fact, we predict that mobile payment could halt the current trend for a decline in shopper loyalty. So, what's preventing wider take-up? We explain why adoption isn't more widespread, and what needs to happen to encourage the world to pay by mobile.



Let's start with the facts. Our 2016 FutureBuy survey of 20,000 consumers in 20 markets revealed that shoppers are becoming less loyal to any one retailer. Almost half (46%) of all consumers (14-65 year olds) agree they are less loyal when shopping. This figure rises among the youngest consumers to 53% of Gen Y (18-29 years), and six in ten (58%) of Gen Z (14-17 years). Furthermore, the majority (68%) of Leading Edge Consumers, our classification for influential early adopters and passionate shoppers, claim to be less loyal when shopping. If you're a retailer, you'd be right to be concerned.

What will drive future online shopping?

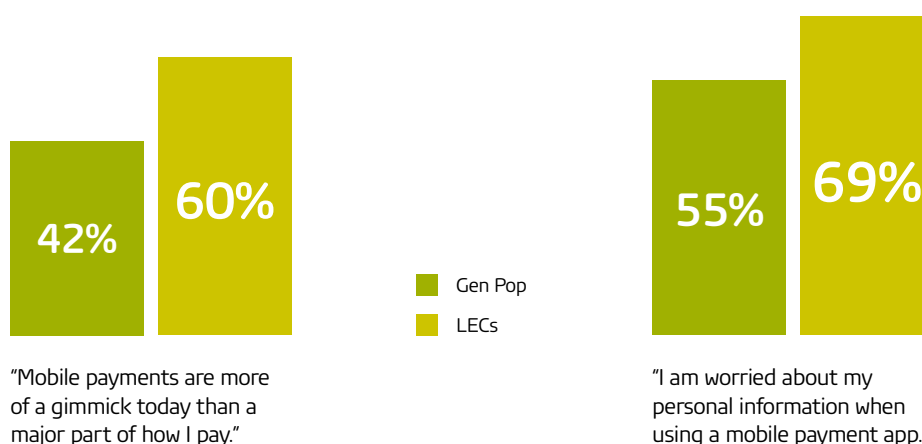


Source: GfK FutureBuy 2016, online survey with 20,000 consumers 18+ in 20 countries

But this does present an opportunity. Younger consumers are the most likely to agree to share their personal data with retailers and brands in a value exchange. So, whether it's money off, personalized offers, privileged access or freebies, the increasing amounts of customer data retailers own provides them with the opportunity to mine this for intelligence on how to improve loyalty levels. The following three scenarios of mobile payment in action show how it can be a catalyst for transforming the retail experience:

- Currently running as an experiment, the **Amazon Go app** claims to be the world's most advanced shopping technology. It facilitates a shopping experience like no other. Shoppers are able to browse a grocery store, take what they want from the shelves and walk out with the goods. There are no queues, no till registers and no checkouts. The app is based on complex machine learning, but the marketing for the concept is simplicity itself – Amazon calls it “just walk out technology”.

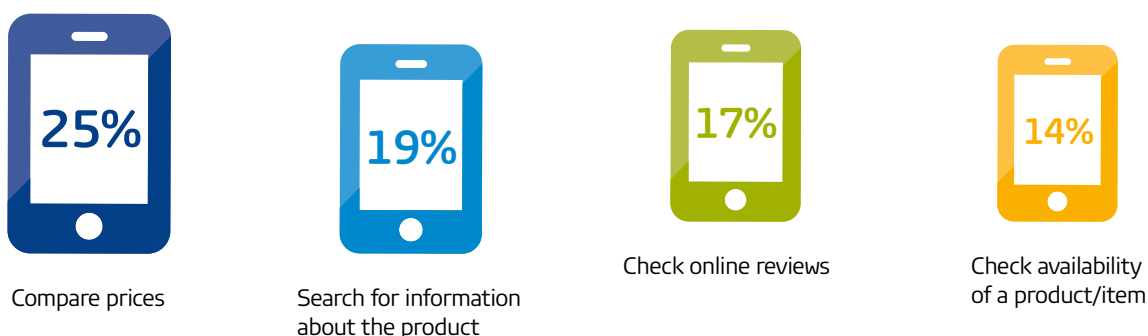
Mobile payments are still seen as a gimmick with security concerns



Source: GfK FutureBuy 2016, online survey with 20,000 consumers 18+ in 20 countries

- **Sweden's first unstaffed 24/7 store** was opened late in 2016 by an IT developer dad who wanted the convenience of an open-all-hours grocery store in a rural area. Customers download an app that allows them to purchase items and gives them access during odd hours for emergencies. The only manual activity is stacking shelves, which don't stock tobacco or alcohol as an anti-theft measure.

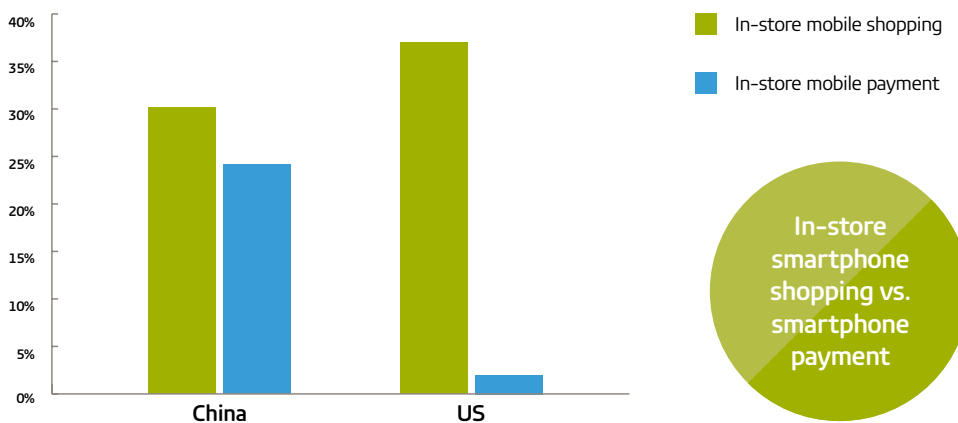
What are consumers doing with their smartphones when shopping in-store?



Source: GfK FutureBuy 2016, online survey with 20,000 consumers 18+ in 20 countries

- In Asia Pacific, mobile payment is eight to nine years ahead of the West. **In China, you can mobile pay for everything from a cab to a mojito or utility bill.** And it is accepted by more than just the large retailers, which explains the mass adoption. Small street vendors simply display a printed QR code on their stall. Diners with WeChat or AliPay scan the code, and the payment credits the vendor's account immediately. This widespread use, plus the region's high mobile phone penetration, explains why WeChat registered more financial transactions in one day here in 2015 than PayPal did during the entire 12 months.

US opportunity to close the gap



Source: GfK FutureBuy 2016, online survey with 20,000 consumers 18+ in 20 countries



Our mobile payments specialist Tim Spenny says:

“The Starbucks app was developed eight years ago, and is still held up as the gold standard for mobile payments in the West. The contrast with the rapidly developing Asia Pacific market is stark. This year, US mass market retailer Kohl’s will release their mobile payment app. It could be the driving force behind wider take-up in North America. We need that momentum because, put simply, consumers are not demanding mobile payments. They are however interested in improving their retail experience. We believe it will be this aspect, combined with the desire of retailers themselves to improve loyalty levels and profits, that will be the catalyst for mass market adoption of mobile payments globally in 2017 and beyond.”



AUTONOMOUS VEHICLES





AUTONOMOUS VEHICLES – A LONG AND WINDING ROAD TO MASS ADOPTION



Do autonomous vehicles have a future? If you believed the media hype, we'll all be transported in driverless vehicles very soon. Vehicle manufacturers and tech companies are working hard to realize this vision. However, while this technology will certainly impact customers' everyday lives in the future, the move to autonomous vehicles isn't going to be as quick or as complete as some big brands would have us believe. In fact, we won't see widespread adoption until at least 2025. The key to understanding the future is to find the happy balance between what consumers want and need, and what the technology can deliver.

There are two main options for autonomous vehicles. One is the low speed "pods" that will run on dedicated lanes, suitable for ultra-urban areas. The other is the production models that are closer to consumers' vision of self-driving cars. And this is the direction being taken by most major OEMs, which are adding more autonomous features to each new model. As the handover from manual control to autonomy continues, and more features are added, it is these models that will lead the way to the total driverless experience. But before we get there, there are four key challenges to achieving mass market take-up:

- **One: Young consumers find the concept most appealing**
Younger consumers find the concept of autonomous vehicles most appealing. As with the adoption of other new technologies, these are the drivers and travelers that will lead the way for others. Manufacturers and service suppliers need to tap into this enthusiasm and treat this audience as the early adopters and influencers of other consumer groups.
- **Two: Logistics of autonomous vehicles**
While many countries moved quickly to establish the legal framework for on-road testing, we are some way off allowing customers to use autonomous vehicles on public roads without a driver monitoring the system. Many questions around safety, compliance testing, insurance and liability remain unanswered. Given the complexity of these issues, as well as their global nature, it would be unrealistic to expect them to be resolved quickly. Manufacturers will need to stagger and adapt rollout plans accordingly. This process will inevitably add cost, time and further complexity to the mass scale of autonomous cars.

- **Three: The safety infrastructure**
Experts agree that the mass scale of pure driverless vehicles will require a complex infrastructure to ensure the highest degree of safety. With consumers also citing safety as a key concern when it comes to adoption, getting this right will be paramount. But such high-cost, long-term developments require significant political will and they will take time.
- **Four: The technology is in its infancy**
At present, adverse weather conditions such as snow, fog and heavy rain present an unsurmountable challenge for autonomous cars. Other technological limitations mean that drivers may be required to take back control in certain circumstances. With no clear protocols for doing so, and with drivers being attracted by the promise of being able to sit back and relax, there's more work to do here to get the technology right.

Jack Bergquist, our autonomous driving expert, says:

“The road ahead for autonomous cars is long and winding. At present, there is a mismatch between what the consumer wants and what the technology can deliver. Consumers expect to be able to switch off and allow the car to do the work, and to be 100% safe. But we are a long way from this scenario. The key to success is to understand what different consumers want, and to match that to evolving technology.”



SMART HOME





WHEN WILL ALL HOMES BE SMART HOMES?

When it comes to smart home, our over-riding message is “look beyond the bubble”. This is one area where there is no shortage of hype. No-one can have failed to miss the sci-fi type predictions about what our homes will be like in the future. Whilst we’ve identified genuine consumer interest in and excitement about the smart home, there are obstacles to be overcome by manufacturers, retailers and the tech giants. These barriers need to be fully addressed before consumers truly understand and embrace smart home.



Currently, in terms of smart home, it’s smart TVs that are the entry point. Our sales figures illustrate the point: smart TVs are the most popular smart device for the home, with sales of 17.38 million in Europe in 2016, up from 5.61 million in 2011. In 2016, sales in Latin America reached 6.48 million, up from 1.04 million five years earlier. Sales in the Middle East and Africa hit 2.78 in 2016, up from 348,552 in 2011. In comparison to these growth rates, sales of smart devices in other categories – home automation and security, large and small domestic appliances, and communication and control – are some way behind.

Clearly, despite the potential benefits these connected devices can bring householders, there remain major barriers that are preventing them from breaking through to become mass market. Here are our top three areas to focus on to drive mass market take-up:

- **Building the right experience is key**
These days, all consumers demand a good user experience (UX) – what we have termed the “UX secret sauce”. At its heart is simplicity, ease-of-use and the all-important and much anticipated seamless experience. Frankly, at present, the proliferation of devices and appliances, not to mention manufacturers, retailers and technology players in the market, is confusing consumers. That’s why we are convinced that mass adoption is heavily reliant on cross-industry collaboration, co-operation and communication.
- **Clear communication of the right benefits to the right people**
The benefits of smart home, and the way it will enhance consumers lives, need to be clearly communicated. Messages should be adapted to the different needs of each part of the market. For instance, when we asked people why they monitored or controlled a smart device in their home, the responses differed greatly by age group. For instance, 62% of Boomers chose “To save money by reducing my utility costs” as their main consideration. In contrast, Gen X-ers ranked “To keep my home safe and secure” as their top priority. For 39% of older Millennials, making it their third most important reason, was “Because it’s cool and trendsetting”. This is almost twice the proportion of any other age group that selected this as a key consideration.

HOME CONTROL

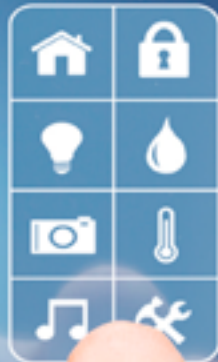


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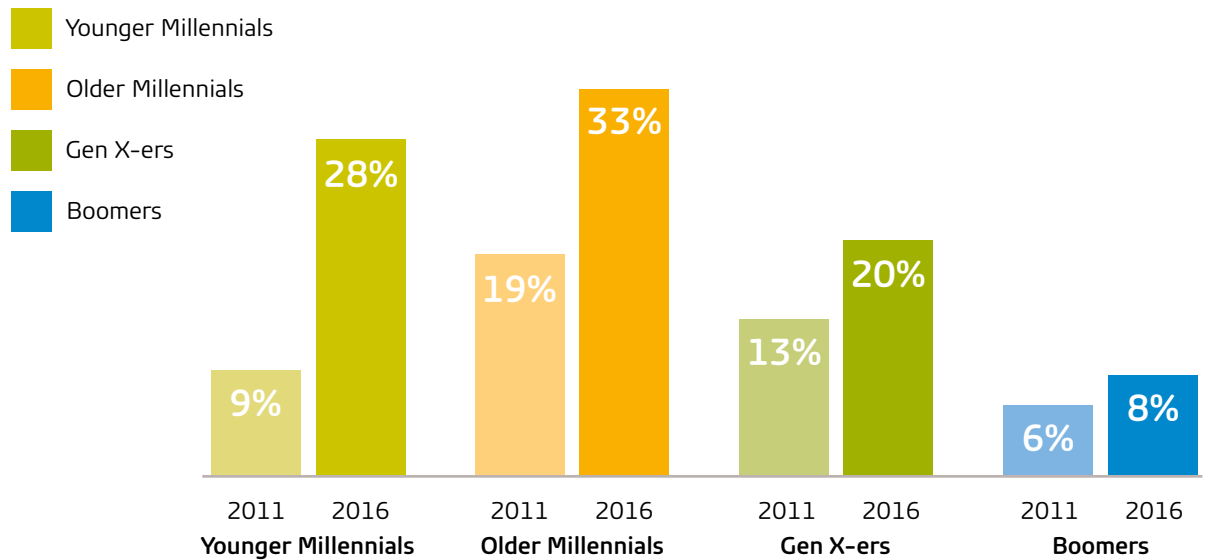
CONTROL

MODE



Where will the momentum be?

% of consumers who plan to purchase in next two to three years



Source: GfK Consumer Life 2011 and 2016, US, 1,000 consumers 18+, asked online



Older Millennials have thus far led adoption of smart home products and exhibit more diverse needs

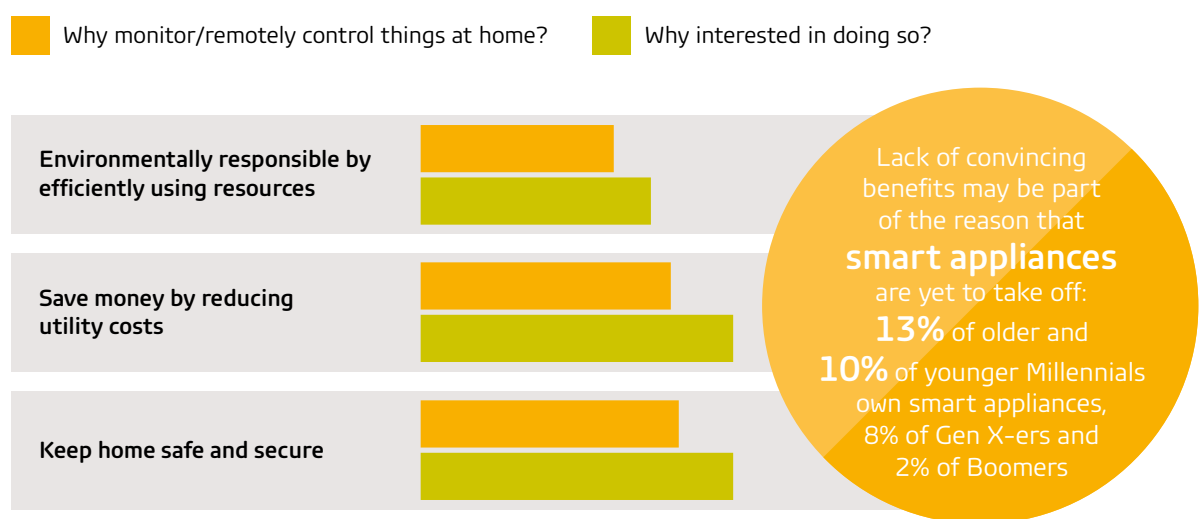
% citing reason they are currently monitoring/controlling device in home

	Younger Millennials	Older Millennials	Gen X-ers	Boomers
To keep my home safe and secure	42%	46%	52%	34%
To save money by reducing my utility costs	42%	44%	49%	61%
Because it helps maintain a healthy environment at home	33%	36%	23%	7%
To allow people to come and go when I'm not there	27%	32%	21%	4%
To be more environmentally responsible by using resources efficiently	26%	38%	26%	23%
Because I like keeping my home updated with the latest tech	22%	38%	23%	19%
Because it's cool and trendsetting	13%	39%	20%	10%

Source: GfK Consumer Life 2015, US, 1,000 consumers 18+, asked online

- The key target groups are Millennials (especially Gen Y)**
 Millennials are leading the take-up in smart home. So far, it's the older Millennials (Gen Y) leading the charge. In fact, 36% currently monitor or control devices in their home with a smartphone, tablet or computer. As the group most interested in the benefits a smart home can bring to their lives, this is the audience for manufacturers and retailers to target now. There is also a large proportion of Leading Edge Consumers within this group and this further adds to their importance – particularly as they are the early adopters and influencers. Where they lead, other consumer groups will follow.

Security and savings driving adoption



Source: GfK Consumer Life 2015, US, 1,000 consumers 18+, asked online

Our smart home expert, Ranj Dale, says:

“The hype about the fully connected smart home continues, but we’re a long way from realizing the vision. With the successful launch of Amazon Echo, we’ve seen that the voice interface provides an intuitive and easy fit into people’s lives. In 2017, we will see other global brands launching new offerings that could drive further growth in adoption. The most successful will be those that can help deliver the simple, seamless experience that consumers crave. What’s more realistic, however, is that these devices will deliver incremental gains. Mainstream adoption is unlikely to happen until manufacturers, retailers and tech players come together to address the obstacles to smart home and clearly promote its benefits.”

Growth from Knowledge

At GfK, we are the link between consumers and markets.

Over 13,000 experts analyze the needs and desires of consumers and combine their knowledge of the international context with analyses of local markets in more than 100 countries.

We measure.

We predict.

We explain.

We consult.

In one phrase: We turn big data into smart data.

And, by doing that, we deliver what really matters.

Our insights enable our clients to sharpen their consumer offering – thereby enriching consumers' lives.

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