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10 Hot Consumer Trends 2030

The internet of senses

Ericsson ConsumerLab
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10 Hot Consumer Trends 2030

Welcome to the internet of the senses.



01. Your brain is the user interface

Fifty-nine percent of consumers believe that we will be able to see map routes on VR glasses by simply thinking of a destination.



02. Sounds like me

Using a microphone, 67 percent believe they will be able to take on anyone's voice realistically enough to fool even family members.



03. Any flavor you want

Forty-four percent predict a device for your mouth that digitally enhances anything you eat, so that food can taste like your favorite treat.



04. Digital aroma

Around 6 in 10 expect to be able to digitally visit forests or the countryside, including experiencing all the natural smells of those places.



05. Total touch

More than 6 in 10 expect smartphones with screens that convey the shape and texture of the digital icons and buttons they're pressing.





06. Merged reality

VR game worlds are predicted by 7 in 10 to be indistinguishable from physical reality by 2030.



07. Verified as real

"Fake news" could be finished – half of respondents say news reporting services that feature extensive fact checks will be popular by 2030.



08. Post-privacy consumers

Half of respondents are "post-privacy consumers" – they expect privacy issues to be fully resolved so they can safely reap the benefits of a data-driven world.



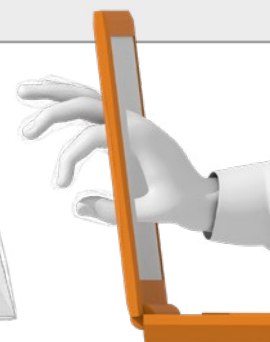
09. Connected sustainability

Internet of senses-based services will make society more environmentally sustainable, according to 6 in 10.



10. Sensational services

Forty-five percent of consumers anticipate digital malls allowing them to use all five senses when shopping.



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Methodology

This report presents insights based on Ericsson's long-standing consumer trends program, now in its ninth year. The quantitative results referred to in the report are based on an online survey of residents in Bangkok, Delhi, Jakarta, Johannesburg, London, Mexico City, Moscow, New York, San Francisco, São Paulo, Shanghai, Singapore, Stockholm, Sydney and Tokyo, carried out in October 2019.

The sample consists of at least 500 respondents from each city (12,590 respondents were contacted in total, out of whom 7,608 qualified), aged 15–69, who currently are either regular users of augmented reality (AR), virtual reality (VR) or virtual assistants, or who intend to use these technologies in the future.

Correspondingly, they represent only 46 million citizens out of 248 million living in the metropolitan areas surveyed, and this, in turn, is just a small fraction of consumers globally. However, we believe their early adopter profile makes them important when exploring expectations on technology for the next decade.

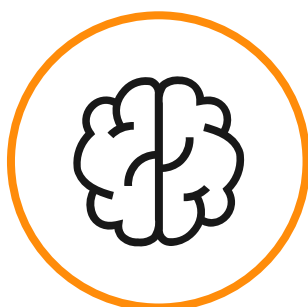
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Ericsson Consumer & IndustryLab delivers world-class research and insights for innovation and sustainable business development. We explore the future of connectivity for consumers, industries and sustainable society by using scientific methods to provide unique insights on markets and consumer trends.

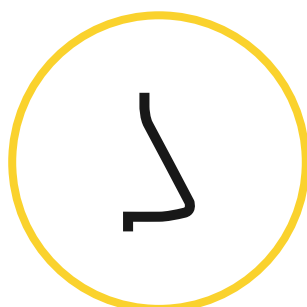
Our knowledge is gained from global consumer and industry research programs, including collaborations with renowned industry organizations and world-leading universities. Our research programs cover interviews with over 100,000 individuals each year, in more than 40 countries – statistically representing the views of 1.1 billion people.

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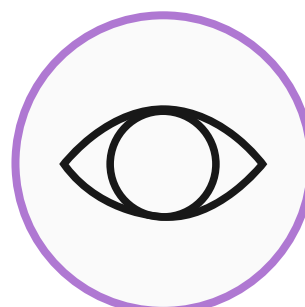
Welcome to the internet of senses



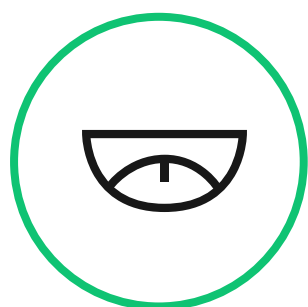
Mind



Smell



Sight



Taste



Touch



Sound

You are sitting in your kitchen. As you think about having an Arabian Nights dinner party, the room starts to change. Arabic music plays softly, the plain kitchen tiles take on bright patterns and the smell of fragrant lamb stew hits your nostrils. You turn your gaze to the table, which is now covered with a rustic woven cotton cloth, flowers, lit candles and exotically decorated plates which you touch and rearrange.

Avatars of your friends appear in the chairs, with calendar access so you simply think: “create invitation”. While the calendars are populated, your table fills up with ingredients from a digital store letting you check their freshness and taste-test a new yogurt sauce. Since two guests are vegetarian, you also taste a plant-based stew before placing your order.

5G – materializing dreams with the internet of senses

Today, technology interacts primarily with two senses – sight and sound. At Ericsson Research, our vision is that advanced technology will enable a full internet of senses by 2025, and include the ability to digitally communicate thoughts by 2030.

We live in a screen-based 4G world where smartphones are integral to our lives, but people aren’t expecting this to be the case for much longer. Half the world’s smartphone users predict that by 2025 we will all be wearing lightweight, fashionable AR glasses. Consumers also predict wearables that can instantly translate languages, allow us to control our sound environment and experience smell, taste, textures and temperature digitally. As consumers step further into this sensory digital world, they will require hyper-fast connectivity, imperceptible edge computing-based lag and advanced automation.

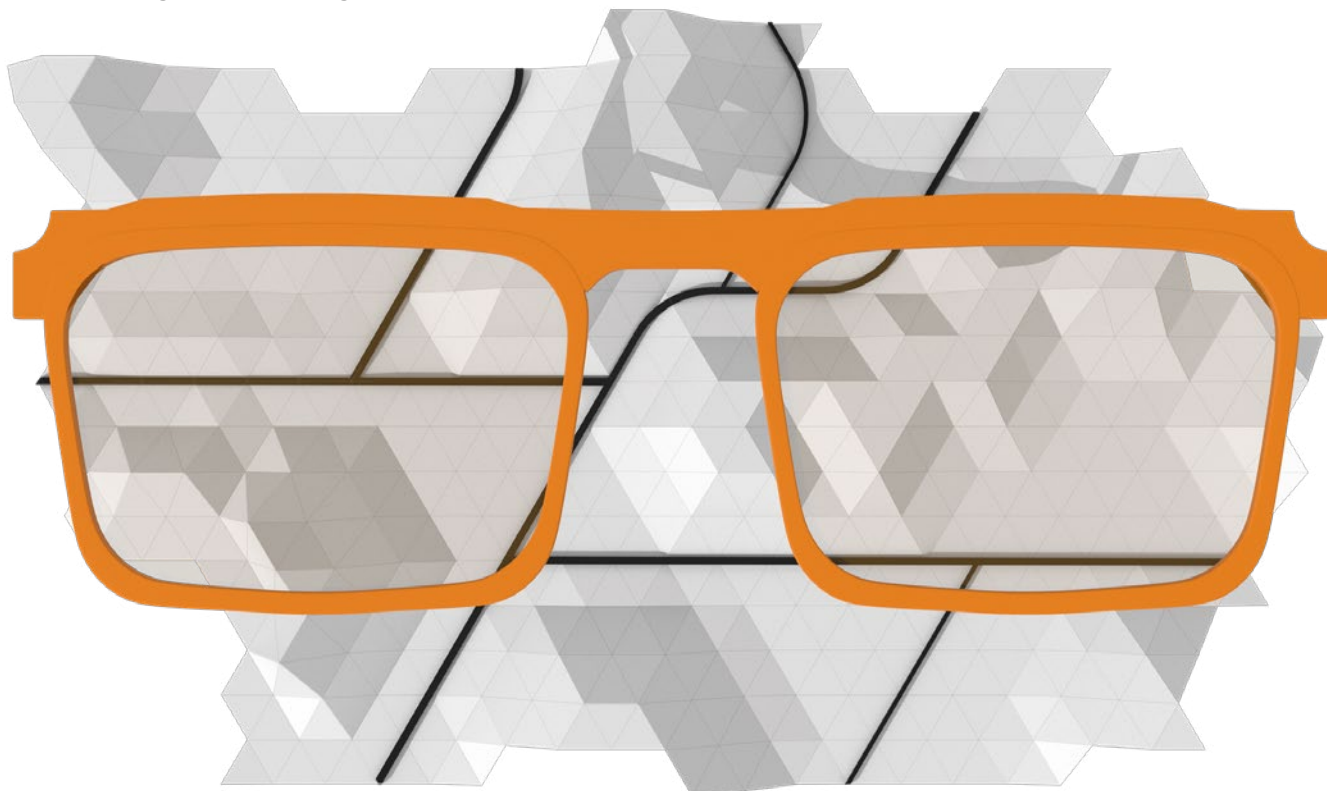
Consumers expect an internet of senses

This vision is not only based on expected technological advances, but also on consumer research: urban early adopters expect that we will be using all of our senses online by 2030. Of those, 68 percent want to use at least 1 of 6 conceptual internet of senses applications we have asked about, and 81 percent are open to the idea overall.

Of those who want an internet of senses, 40 percent see immersive entertainment as a main driver for this change; 33 percent think better online shopping will be key; and 31 percent think this change will come about due to the climate crisis. The big five tech companies along with industry-specific companies are expected to dominate and run roughly half of all internet of senses services by 2030.

Your brain is the user interface

Many predict that the lines between “thinking” and “doing” will blur.



More than 2,000 years ago, Greek philosophers thought that each human was alone and could never truly know the existence of another. This isolation is simply part of the human condition – but maybe not for much longer. By 2030, technology is set to respond to our thoughts, and even share them with others. Think what that will mean; think, and that will mean.

Using the brain as an interface could mean the end of keyboards, mice, game controllers, and ultimately user interfaces for any digital device. The user need only think the commands, and they will happen. Smartphones could even function without touch screens.

This opens up new device categories with entirely new interaction paradigms. Among those, the highest consumer expectations are on AR glasses, with 6 in 10 expecting that thinking “show map”

would display a map right before their eyes, and that they could search for routes simply by thinking of the destination.

With these capabilities, many other applications that are almost unimaginable today suddenly become quite straightforward. Have you ever met someone who seemingly knows you, yet you cannot place them or even remember their name? This problem will be eliminated by 2030 as, according to 54 percent of consumers, in response to thought requests, AR glasses will show them information about people they meet, such as their name or where they met before.

The implication is that our thoughts will be fully accessible by technology. Therefore, around half of all respondents believe that by 2030 the ancient Greeks will be proved wrong and our minds will essentially be connected; they expect to have the ability to reply to short messages

using only thoughts, while 40 percent even believe they will have the ability to directly share thoughts with their friends and loved ones. Consumers have shown interest in thought communication before: in our 2015 trend report, more than two-thirds believed this would be commonplace by 2020.

With this technology, the concepts of integrity and privacy will take on new meanings. For example, people don’t want advertisers to access their minds: well above 50 percent say data will be private for any thought service concept we asked about, with 7 in 10 saying that thought data for locking and unlocking their front doors needs to be private.

Today, advertising revenue powers many, if not all, application categories. So what will be the new business model in 2030? This is a subject in need of some serious thought.



Sounds like me

How we listen to, speak to and understand each other is due a big digital upgrade.

Sounds are all around us, from soothing melodies

we choose to play through our earphones to nuisance noises like the jangle of the subway train. By 2030, consumers expect to be fully in control of not only what they hear but also of what others hear from them. Consumers will more actively shape their sound world and no longer be content with exposure to unwanted ambient sounds.

Going forward, people expect to be even more in control of how their voices come across in any language. More than 7 in 10 expect to have earphones that automatically and flawlessly translate languages. With such earphones they could call anyone in the world, in any language, and sound just like themselves. They could even choose to sound like someone else; 67 percent believe they will be able to take on anyone's voice, with such realism they could even fool family members.

The ambience of sound will also make digital and physical experiences equally natural. Thus, sounds are foreseen to become spatially embedded in such a way that any digital object placed in the

physical world sounds totally real. For instance, a room full of digital objects would produce fewer echoes compared to an empty room.

It is believed by 6 in 10 that they will be able to hear the breath and footsteps of in-game characters, such as a Pokémon behind them, and locate it by those noises exactly like they would a real person or animal. Furthermore, half believe we will not even need earphones for these things at all; instead, a headband will transmit sound directly to the mind.

Being actively in control of what we hear is positively perceived by many; 54 percent expect to have the ability to create a digital sound bubble, enabling them to hear only what they want, for example while on a crowded bus. Social media services are sometimes criticized for being echo chambers — but what will happen to communication when everyone can create an actual echo chamber?

Maybe such potential isolation will be broken when our hearing goes beyond its natural limits. Almost half expect to be able to use a headband that converts sounds to

other sensorial experiences. For example, you could change voices into sensations on your skin or the sound of the traffic around you into colors.

51%

Around half expect to have headbands that can transmit sound directly to our brains.

54%

In crowded places such as buses, 54 percent expect to be able to create a digital sound bubble to block out unwanted noise.



Any flavor you want

Our taste buds produce powerful, personal experiences, and they are about to be digitalized.



Video data accounts for the most online traffic today. But seeing isn't always believing — looks can deceive. That's why, as newcomers to the physical world, babies learn about an object by instinctively putting it in their mouths. Until now, our online existence has not allowed us to practice digital "mouthing", but that is set to change.

Could you imagine putting a device in your mouth that digitally enhances the food you eat, so that anything can taste exactly how you want it to? By 2030, 44 percent expect this to be possible. This could have big implications for our health and diets by enabling us to eat healthy foods, and yet have them taste like five star restaurant cuisine.

Taste greatly informs the way we remember the past. Think back to your childhood and you will almost certainly remember the taste of certain treats or home cooking. Not surprisingly then,

44 percent forecast the ability to enhance such memories with digital taste going forward — pictures from parties and holidays will let you not only see what happened, but also savor the sweet and sour of it all.

Food samples are usually popular among customers in grocery stores so people can try before they buy. Many accept a taster even if they're not actually considering a purchase. More than 4 in 10 expect a revolution in online shopping as we gain the ability to digitally taste samples from the comfort of our own devices. Nearly as many believe there will be TV cooking programs that allow you to experience the taste of the food on screen. In addition, 4 in 10 predict that this type of digital sensory information will be financed by advertising, indicating that our taste reactions are not perceived to be as sensitive as many other kinds of personal data.

44%

More than 4 in 10 consumers expect to be able to taste their memories in the future.

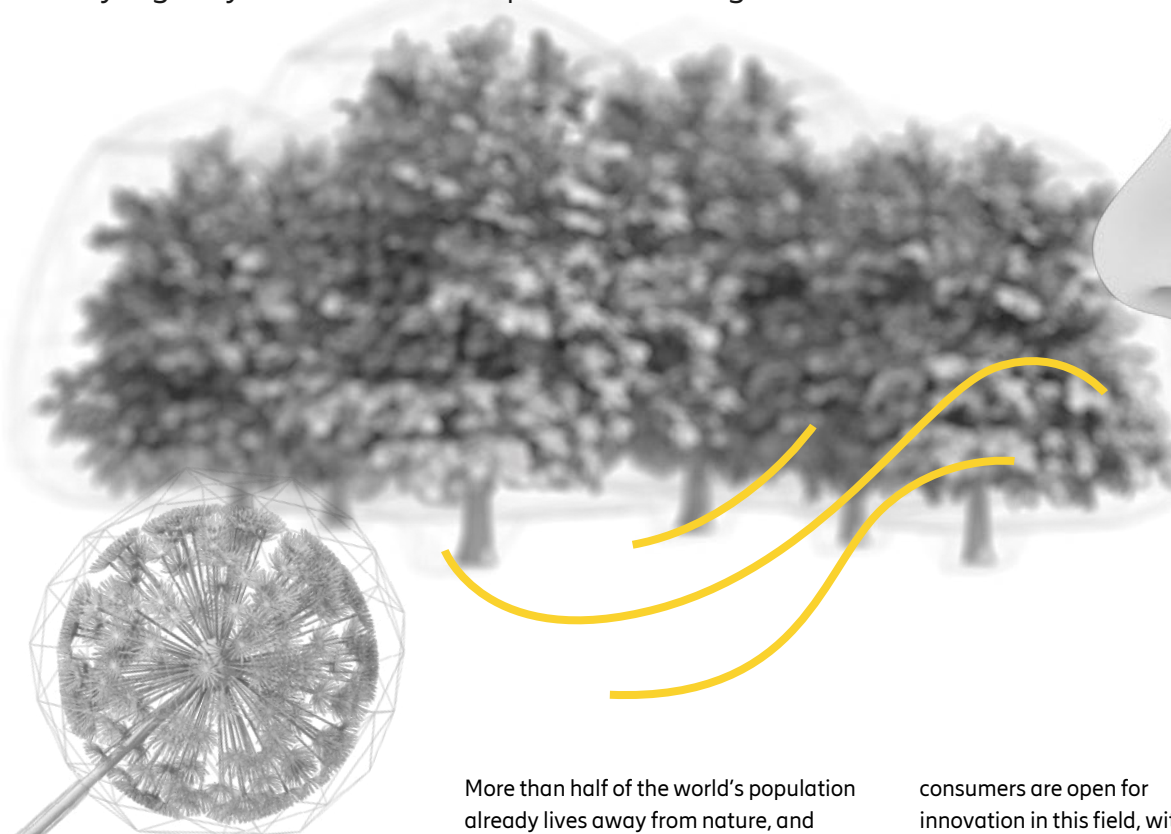
38%

The ability to share what you taste with your friends is predicted by 38 percent of consumers.



Digital aroma

Currently, smell is almost impossible to convey digitally – but this is all expected to change.



We may have all but lost our understanding of fragrances.

Modern people use deodorant to conceal their body odors, and traffic exhaust fumes in our bustling megacities make us numb to olfactory sensations. We may even think of our noses just as a place to put our glasses, or as a reminder that we have caught a cold.

In reality, smell is important; the chemical language of scent is a physical sensation that affects us directly and deeply. This is why, for example, car manufacturers make sure that their cars smell new, or why coffee shops are so much more alluring than vacuum-packed coffee from the supermarket.

Typical online experiences don't involve scent today; however, consumers are estimating our sense of smell to be a key part of the internet by 2030.

More than half of the world's population already lives away from nature, and continued urbanization drives have increased our need for natural experiences. For this reason, 6 in 10 expect to be able to digitally visit forests or the countryside and experience all the natural smells of those places. This is the most highly held expectation among the smell-related concepts respondents were asked to rate, and it indicates a strong need for deeper immersion than videos can offer.

The experience of watching any type of video would feel more immersive if you could smell the action. In 2030, 56 percent expect to be able to digitally savor all the smells in films they watch. Although there have been attempts to incorporate scent during films as far back as the early 1960s, their failure to gain popularity have likely been due to a lack of effective technology rather than of popular interest. Given our shallow acquaintance with many of the world's aromas, it also seems

consumers are open for innovation in this field, with 47 percent expecting smell data to be available for companies to use commercially. At least for now, many don't see the need to keep their digital smell private.

Finally, this technology doesn't have to cause a stink – we will be able to avoid bad smells whenever we choose, with more than half expecting a device that digitally transforms stinky smells into nice fragrances in their noses. Almost half also expect to be able to control how they smell to others, using digital perfume and deodorants.



Total touch

Consumers are expecting that we'll be able to touch anything, anywhere, completely digitally.



Anyone who has played Mario Kart can attest that a vibrating controller adds to the experience. However, those who have tried the VR arcade version might agree it takes everything up a level, with a mock-up kart that shakes in sync with the game to create an impression of a moving vehicle.

Digital touch is set to grow way beyond the rumble of your game controller or the haptic feedback of current VR systems. Going forward, people will think of digital touch as something affecting their whole body and not just their hands.

The most easy-to-imagine feature for consumers is the physical impact of sound, with 7 in 10 foreseeing earphones that can

digitally transfer the physical impact of live concert bass sounds to their chests.

After years of swiping on smooth glass surfaces, 63 percent also expect smartphones with screens that convey the shape and texture of the digital icons and buttons that they're pressing. It would be great to feel the buttons and icons retract when force is applied.

But the ability to feel digital textures might go way beyond the confines of the smartphone screen. In fact, 6 in 10 think wristbands that stimulate the nerves so you can feel any digital object will be available by 2030. We could digitally feel anything, from something simple like a ball to the skin of another person; the applications of touch tech may be nearly limitless. In addition, 6 in 10 think such armbands will transmit the sense of weight and motion, so that digital objects they touch seem fully real.

Why stop at the narrow borders set by physical touch? We might even be able to feel things beyond human senses; 59 percent foresee wearables that let us feel the oncoming weather, such as storms, rain or heat waves. Literally, we may be able to touch the sky before long.

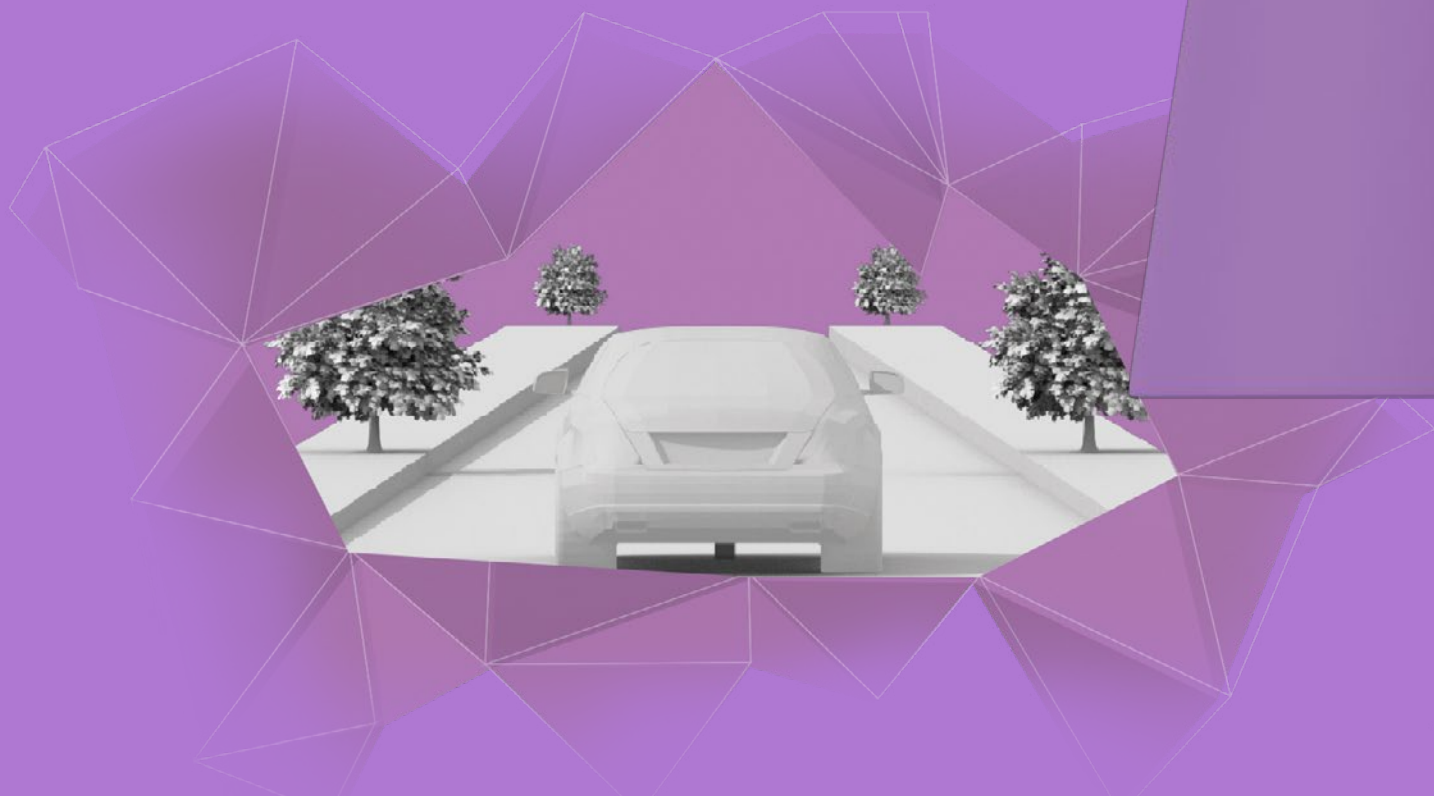
62%

More than 6 in 10 predict wristbands that stimulate the nerves so you can feel any digital object.



Merged reality

Many believe that our physical and virtual realities will be interchangeable by 2030.



When the internet was introduced, it divided the world into two – our physical existence, and its digital shadow. We call these halves “offline” and “online”, but in fact these words no longer carry much distinct meaning, as most everyday experiences are becoming a spaghetti-like tangle of on- and offline activities.

By 2030, half of respondents imagine the difference between physical and digital reality will be almost completely gone. Interest in merged realities was highlighted in our 2017 consumer trends report, where we found that four in five AR and VR users believed these technologies would be used as commonly as the internet within three years. While that may be true for such users, these technologies have not hit the mainstream as quickly as early adopters predicted.

However, given that video currently accounts for the majority of online

consumer traffic, visuals are likely to be at the forefront when our physical and digital perceptions eventually do merge beyond the point of meaningful separation. The first such merged visual experience is projected by consumers to be in gaming: more than 7 in 10 respondents believe VR game worlds will look indistinguishable from physical reality by 2030.

The physical and virtual realities will merge from both directions. On the one hand, digital objects will become part of physical reality; for example, 7 in 10 foresee AR glasses that allow you to place digital objects anywhere in such high quality that they look completely real. Meanwhile, physical reality will become as transient as digital data, with 56 percent expecting that AR glasses will let them see through walls or even whole buildings.

However, glasses may not even be needed for merged reality; 68 percent

believe holographic 3D displays for everything from handheld devices to billboards will be available by 2030.

Interestingly, those who foresee that we will experience merged reality by the end of the decade are the ones who also see potential issues more astutely than others. Alarming, 48 percent of them say that they often feel that they have already become slaves to technology, whereas only 27 percent of other early adopters agree. It may be almost as fun to play with a digital fire as with a real one but when digital turns real, it might burn you.

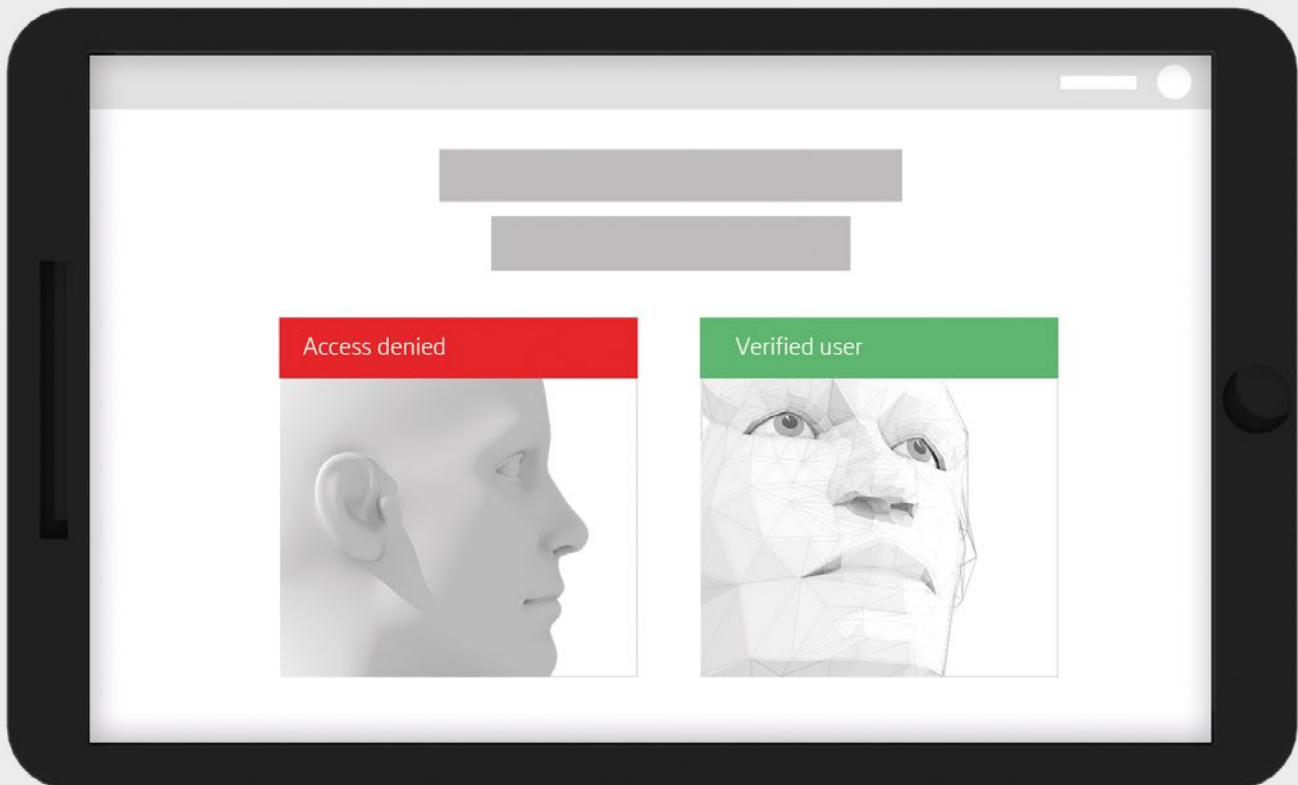
56%

Seeing through walls with AR glasses will be possible, according to 56 percent of consumers.



Verified as real

When technology can mimic and manipulate our senses, how will we know what is real and what is fake?



Half of consumers believe that by 2030 an internet of senses could advance to the point where physical and digital realities have for practical purposes merged into one. When the digital world is perceived to be as real as the physical world – what will happen to our perception of real vs. fake?

Today, a similar debate is centered around fake news. By 2030 this could be a thing of the past, given that half of respondents say news reporting services that feature extensive fact checks will be popular by then. In addition, 4 in 10 foresee the rise in popularity of online photos that are guaranteed to be unedited.

In a world full of avatars, being verified as human could be a real game changer, and perhaps form the foundation for exclusive social media platforms or services ensuring genuine representation only.

For instance, 4 in 10 see social networks with a no-bots-guarantee becoming popular. As many as 43 percent foresee video calling services that only transmit unmodified, verified human faces. This trend is even more accentuated when it comes to dating services, where 46 percent see dating sites including only verified facts being popular in 2030. It will be interesting to see if this will include upfront declarations of beauty surgeries such as facelifts!

Naturally this also translates into the world of physical goods. Today, for instance, customers buy fair trade and eco-label food to ensure that the production of their goods is responsible and sustainable. Counterfeit goods are also mass-produced around the world today, a practice which could be counteracted with new

technology. Half of the consumers surveyed think online shops featuring digital goods that are guaranteed not to have been tampered with in any way will be popular by 2030. Consequently, almost as many also see brands whose selling point is to provide goods and services with “verified truth” becoming popular.

50%

Exactly half of consumers think that fake news will be a thing of the past by 2030.



Post-privacy consumers

In the data-driven future, consumers see regulation and transparency as a means to resolving privacy issues.



Half of respondents in our study can be classified as post-privacy consumers. On the one hand, they expect digital data laws to clearly regulate public and private data use, so that privacy concerns no longer exist. On the other hand, they also believe that technology such as face recognition will be used everywhere, to the extent that the concept of privacy no longer exists.

This may seem like a paradox, but post-privacy consumers expect privacy issues to be totally resolved so they can safely reap the benefits of a data-driven world. An astonishing 83 percent of them are interested in an internet of senses, compared to just over half the other respondents. Thus, removing personal data rights issues will be a key challenge for companies in the next decade.

More than other advanced internet users, post-privacy consumers envision a society where digital is an integral

driver of the economy and productivity. For instance, 70 percent of post-privacy consumers believe that nearly all jobs will involve advanced digital skills by 2030, compared to only 23 percent of other early adopters. That there will be a global digital currency accepted everywhere is believed by 64 percent of post-privacy consumers, whereas only 21 percent of others think so. Well over half of post-privacy consumers are also firm believers that automation and digitalization will lead to drastic price reductions on products and services, compared to only 12 percent of other early adopters.

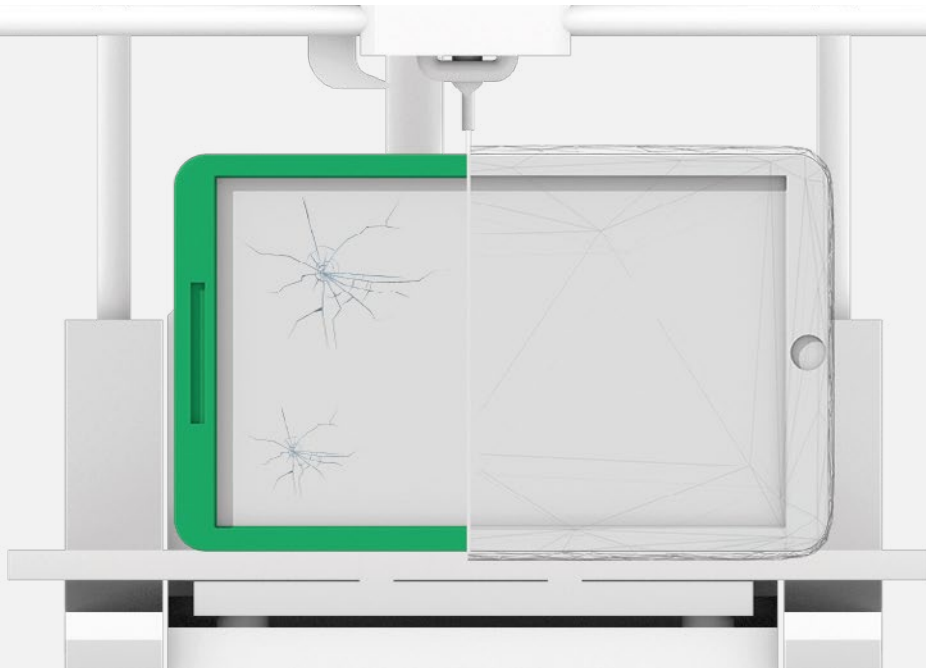
However, there is more to the post-privacy society than just the upsides: 59 percent of post-privacy consumers foresee social credit systems being more common than loyalty points and airmiles, whereas a meager 14 percent of others agree. To the post-privacy consumer,

everything we do will be possible to trace and rate, and perhaps this is why privacy regulation is so important to them. Of the post-privacy consumers, 56 percent also foresee that digital invisibility cloaks will be commonly used to escape leaving an online trail. A reason for this might be fear of unfair AI treatment, since 45 percent foresee that we will live with algorithm anxiety. However, AI doesn't just cause anxiety: nearly 4 out of 10 expect an AI rights movements arguing for equal rights for robots, whereas less than 1 in 10 of other early adopters see that happening.



Connected sustainability

The ability to digitally “be” anywhere might save more than just our time – it could help save our planet, too.



Today, youth all over the world are crying out to older generations to make a radical u-turn towards a sustainable future. Simultaneously, digital technology is at a tipping point where it is viewed by top researchers as a “wild card” – meaning that it can be used to either rapidly transform our economic systems, or to drive emissions even higher. It is up to us.

The good news is that 6 in 10 think internet of senses-based services will make society more environmentally sustainable. This group also view other questions about technology and the environment completely differently to others. For instance, 55 percent of them foresee climate-proof internet subscriptions that guarantee connectivity during environmental disruptions, compared to only 24 percent of others. Half of them also expect water purification and desalination to become cheap and readily

available to anyone, while only 1 in 5 of others think so.

The recently published Exponential Roadmap¹ identifies 36 solutions to halve global emissions by 2030, and digital solutions are estimated to enable one-third of that target. Given that nearly one-third of respondents in our study state sustainability as a main driver for adoption of an internet of senses, these evolving digital behaviors may well contribute to accelerating this development.

One sustainability benefit could be the continued transition to a higher consumption of digital experiences over physical products. However, a transformation of how physical goods are produced is also needed. It turns out that 6 in 10 of those who think an internet of senses will help create a more sustainable society expect 3D printers to be cheap and able to print almost any object by 2030, compared to half as many among

other early adopters. The effect of this could go both ways: 3D printing could just as well lead to increased consumption of materials and energy.

The internet of senses is expected to drive new travel and commuting patterns, with 57 percent of those seeing sustainability as a main driver predicting that working and socializing totally virtually will be common. Also, 55 percent of them foresee remote healthcare, education and work to have advanced to a point where physical travel is needed less frequently.

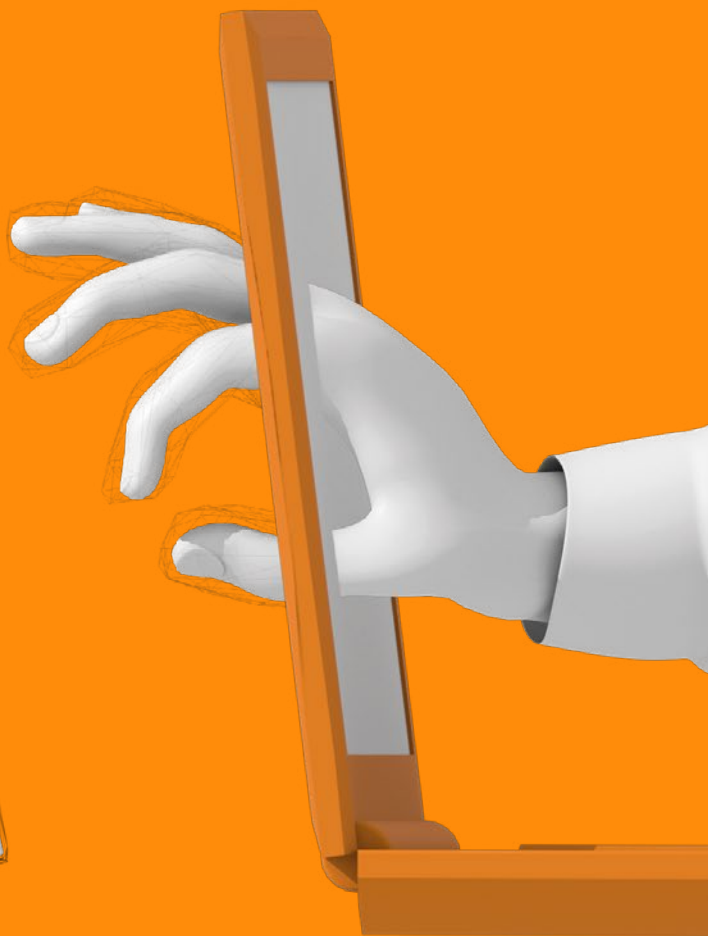
Perhaps this indicates the end of normalized global travel, giving rise to a new kind of sustainable society built on steadfast settlers traveling only virtually. More than half of those seeing sustainability as a main driver for the internet of senses think we will be online “citizens” of the digital worlds created by global tech companies by 2030.



¹Exponential Climate Action Roadmap, www.exponentialroadmap.org/

Sensational services

Services spanning all of the senses are expected to digitalize daily life.



In this study, consumers predict that by the next decade digital sound and vision, complemented by touch, taste, smell and more, will transform our current screen-based experiences into multi-sensory ones that are practically inseparable from physical reality. What would everyday life be like in such a world?

In part, this change is already happening — elements of the other senses are coming into play, such as VR headset accessories with aroma generators and micro-heaters or coolers, haptic feedback bodysuits or simple vibrating game controllers. Perhaps you will eventually be able to taste a glass of digital wine while hanging out with friends in a game. With some luck, that won't lead to a digital hangover the day after.

Turning digital experiences into immersive adventures could truly revolutionize travel and tourism. Imagine being able to not only see the ancient remains of Pompeii but taste ancient street food, experience a traditional bath, and feel the scorching heat as

Vesuvius suddenly erupts. As many as 43 percent want to experience such full-sense immersion in moments of historic significance and drama.

Respondents also see the potential of revolutionizing everyday life. More than 4 in 10 want a digital workstation that allows them to be virtually present at work or school from anywhere. Not only would colleagues appear and sound totally real, you could interact with every object in the room, including tasting a colleague's birthday cake and being handed a report. Other aspects of work, such as commuting and the use of office buildings, would be forever changed. Moreover, as many as 45 percent say they are interested in a digital shopping mall where they can feel the texture of clothes and furniture, smell the freshness of the vegetables and taste samples of foods available for purchase.

Consumers who expect this development see both challenges and opportunities. Those who expect physical and digital reality to fully merge are also the ones most worried about becoming

slaves to technology, while those who expect strict privacy regulation are also the ones who expect the end of privacy due to the rise of facial recognition technology. Much remains to be said and considered about the social and personal implications of a full internet of senses — but we hope we have inspired some thoughts.

43%

More than 4 in 10 would like to go on digital adventure holidays that engage all of their senses, immersing them fully in other places and time periods.



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