

CES with isobar





CES 2019

THE AGE OF INTELLIGENCE, AUTONOMY AND AUGMENTED HUMANITY

CES 2019 saw more than 185,000 industry professionals descend on Las Vegas to network and mingle while being introduced to the next generation of consumer electronics, companion services and integrated experiences. Here, brands continued to push for differentiation and, with more than 6500 exhibitors, that wasn't necessarily easy.

At **Isobar**, we work with some of the world's largest brands who also seek to set themselves apart, to transform their businesses and reinvent their offerings to provide valuable new products and services to their customers. So we look to CES for a truer glimpse of where our technology-driven culture is headed and to learn how people are responding to what is being unveiled across the millions of square feet of exhibitor space.

Why? CES brings a lot of new data to our teams. Not only do we all get a better understanding on the major movements and state of the industry, but we also get to explore the many interesting insights that can be surfaced as we start to look at things outside the main exhibitor spaces.

Our consumer economy is largely influenced by technology – from critical household infrastructure and modes of transportation to those shiny objects that capture the imagination (and dollars) of early adopters. We seek to better understand how our collective culture is being molded and what emerging trends will become the things we rely on to improve our day-to-day experiences or occupy our free time.

This report will give you a better understanding of the larger trends that are already upon us and influencing our daily lives. We hope to also shine a spotlight on things that we feel are interesting, relevant and that will impact the way we think, act and interact in the coming years.

Technology & Trends



Every year, CES leads to the unsurprising revelation that the devices we rely on are getting smaller, faster, brighter and sleeker. The batteries that power our machines last longer and are easier to charge. The pixels that bring us content are more tightly packed and more powerful than before. Products are differentiated with features that mostly seem obvious – improvements of what we had available before.

CES is packed with examples of such incremental innovation, much of which is driven solely as a means to create a sense of new, rather than offering a truly unique and differentiated experience. The TV category is the most obvious place we see this and, while there are plenty of interesting technology innovations happening under the plastic, most of the improvements aren't what the consumer population has been asking for.

In fact, your typical consumer doesn't understand the technology that is packed inside of their screens today; they just like the bright, crisp and dynamic picture they see. In many cases, consumers actually have trouble distinguishing features from device to device. We will touch on category-specific innovations (like LG's fantastic roll-up TV screen) as we get deeper into this report.

Other technologies we've been tracking over the last several years have managed to make their way from R&D labs and corporate innovation centers, into the products and services being announced at CES launch events.

These technologies – some easier for laypeople to grasp than others – don't always stand on their own; instead, they act as the enablers for new experiences. When these new technologies are combined, they introduce new capabilities to consumer electronics, making them more compelling, more responsive, more human and ultimately more desirable.

TRENDS

TOP TECHNOLOGY & TRENDS AT CES 2019

01

CAMERAS AND SENSORS

It's all about content production and delivery, which is a huge business when it comes to cameras and sensors. One stand-out this year was **Sony's 360 Reality Audio**. It combines capture and playback hardware to provide spatial sound that brings you closer to your favorite artists. There is no doubt spatial audio will find new audiences in 2019.

02

ARTIFICIAL INTELLIGENCE

AI is the future of tech much like the transistor once was. Machines can now process – and make sense of – billions of data points, and that will be what makes everything from self-driving cars and augmented reality to brain interfaces and gestural radar sensors possible. The question you should be asking isn't, "What will AI change?" Instead, consider, "What will my customer want to do with the hours of free time AI gives them?"

03

VOICE FEATURES

According to Google, 1/5th of mobile searches are done with voice, and that number is quickly growing. Your phone can listen to you, as can your TVs, your cars, even your light switches. Remember how the expanding range of mobile screen sizes led to the use of responsive design? Well it's time to add voice to one of your breakpoints because it's where your customers are going.

04

BLOCKCHAIN

Blockchain is finally emerging from the shadows of cryptocurrencies. By using blockchain, Walmart is reducing the time it takes to track food from farm to store down from one week to 2.2 seconds. By Oct. 2019, all leafy greens at **Walmart will be tracked with blockchain**. Why this requires blockchain, we aren't sure as blockchain assumes that there isn't trust between parties, but enhanced food traceability will improve supply chain economics and protect the health of customers.

TRENDS

TOP TECHNOLOGY & TRENDS AT CES 2019

05

5G

Yes, you'll be able to stream 4K video to your phone, but that's only part of what makes 5G desirable. The less "shiny" thing it solves for is latency, or the time it takes the network to respond to requests. Up to 20x faster than 4G LTE, 5G is perfect for information that needs to be transmitted instantly. For instance, driverless cars will finally have the reflexes they need to avoid another car that just swerved into their lane.

06

SCREEN TECHNOLOGY

If there's a technology keeping Moore's Law alive, it's screens. From 1080p to 8K, the resolution keeps increasing on a yearly basis. Their forms are also changing – from thick slabs of glass to more flexible materials. Much as video games pushed computer hardware innovation, screen technology will evolve TVs in ways that will integrate them into our computers, our cars and our surroundings. If LG's roll-up television is any indicator, permanent screen fixtures will soon be a memory.

07

BATTERIES / POWER

Batteries are finding their way into everything thanks to the growing number of personal and mobile devices. Additionally, solar, kinetic and wireless charging over greater distances are gaining commercial viability. While the material science of this is exciting, the outputs of these devices are more so, since the increasing number of always-on devices leads to more persistent sources of available data. Acting on the data, with the help of AI, is paramount to gaining customer loyalty through personalization.

SPOTLIGHT: OFF THE MAIN FLOOR TO THE LAND OF INVENTION

EUREKA PARK

Eureka Park has come a long way over the last four years. It consistently presents a varied mix of the most innovative, disruptive and downright wacky gadgets and inventions at CES. It's also growing larger every year. Now the largest startup event in the world, Eureka Park boasts over **1000 exhibitors from 30 countries**.

The booths themselves are typically purchased by National Pavilions, such as **La French Tech**, as well as entities like Hardware Club (a France-based community based hardware venture firm). These groups make their booths available to startups who often receive their financial and logistical support. With all this French support, it's not surprising that **France sent more tech startups to CES** than any other country, including the U.S. Another remarkable difference was the number of empty booths at Eureka Park. It has been speculated that this was due to an anonymous single large booth buyer pulling out at the last minute.

One Eureka Park startup that stood out was **Vue**, a San Francisco-based company that makes smart—and smart-looking—glasses. Rather than using a heads-up-display, Vue's glasses augment your reality via bone conduction sound. Vue glasses are stylish, look like normal glasses, and let you listen to music, make calls, track activity and more. While other audio glasses, such as **Bose Frames** have been introduced, they use speakers rather than bone conduction audio. As such, others near you may hear what you're listening to.

Another standout was **Waverly Labs**, which offers wireless earbuds that allow for music streaming, voice calls... and language translation. Such a device is the holy grail for avid travellers and aspiring polyglots. The product promises to offer translation and interpretation of 15 languages and over 42 dialects. Utrolig!

Many of the best inventions we saw at Eureka Park neatly fit into the categories we will explore in the rest of this report. And others are almost uncategorizable. One booth we came across spotlighted the incredible work of the Sweden-based **Flyte** – a company that makes gravity-defying lamps, planters and clocks. On display was Story, the world's first levitating timepiece in which the second hand is a floating ball that hovers approximately half an inch away from the wooden face.

Even though it was emptier this year, Eureka Park continues to be a place where we go to be inspired and find out what's next.

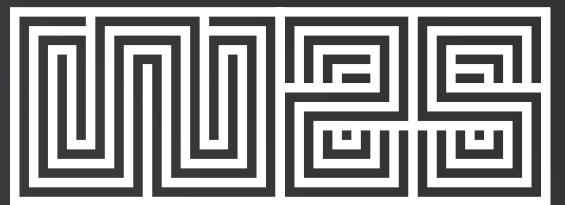
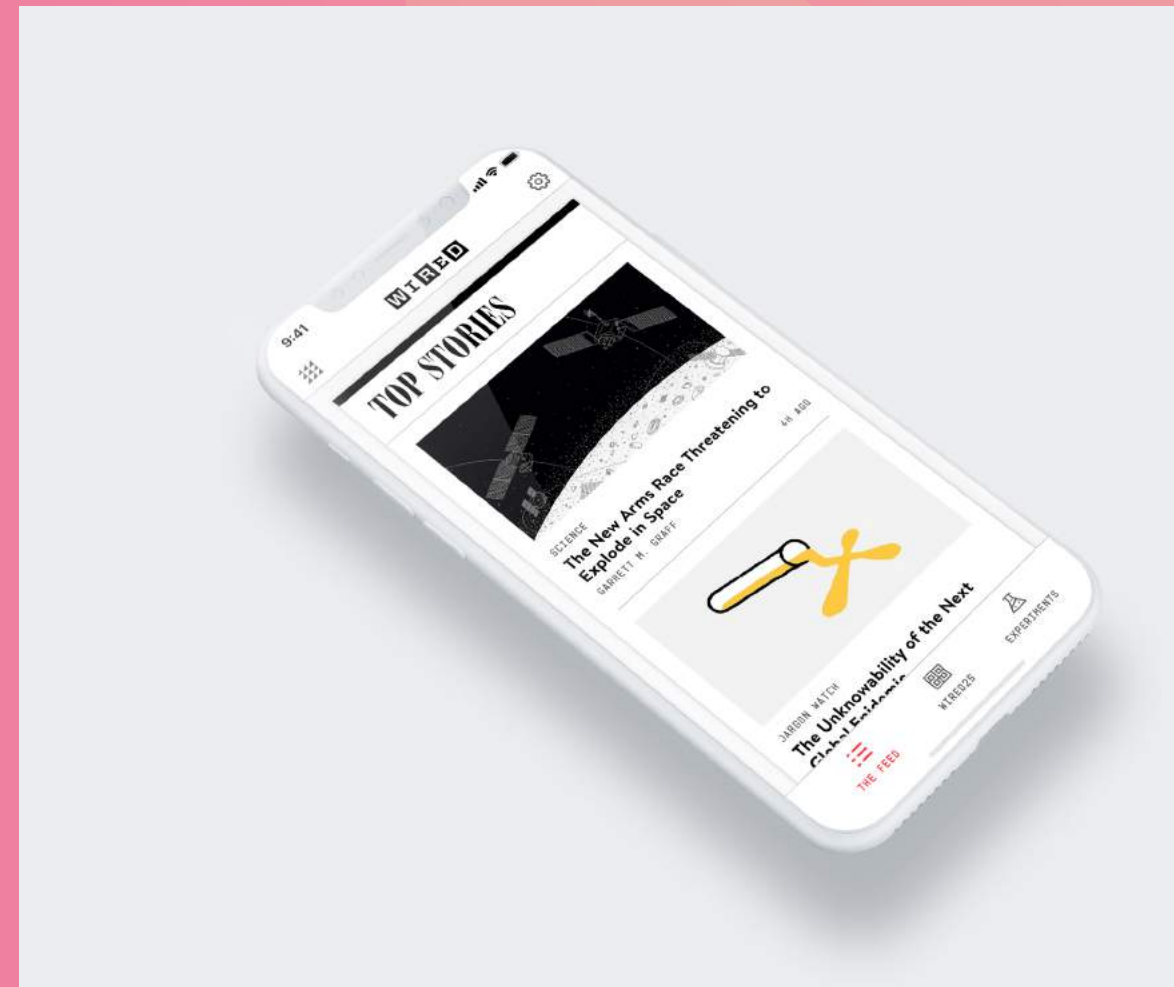
SPOTLIGHT:

THE WIRED CAFE

WIRED has long been an industry go-to for Isobar employees. This past year saw us switching places as the influential magazine came to us to be their **experience agency** for their massive anniversary event, WIRED25. Through this partnership, we created and launched an innovative app that now acts as the publisher's standalone app. In addition, Isobar and WIRED launched a new section for the site: Experimental Content.

The Experimental Content is an opportunity for the publisher, along with Isobar, to push the boundaries of content as we know it. In the coming year, Isobar will be teaming up with major technology partners to reinvent content consumption.

Because we always look to WIRED to report on what's next, what's new and what should be on our radar, it's no wonder we set up shop in the WIRED Cafe at CES.



WIRED 25

SPOTLIGHT

THE WIRED CAFE

Conveniently located on the second floor of Sands near the trade room floor, the cafe was actually a “reskinned” version of the “Yardbird Southern Table & Bar.” It featured a bar with DIY Bloody Mary’s, Harley Davidson’s electric motorcycle prototypes, a gadget display, and demos from **Arrow Electronics**.



At the hub of innovation, we were grateful to our WIRED partners for allowing us an opportunity to mix and meet with many great thinkers. Stay tuned for what’s next from Isobar + WIRED!

THE BIGGEST

BUZZ

ACROSS SECTORS

BIGGEST BUZZ ACROSS SECTORS

THE FUTURE OF AUTOMOTIVE IS HERE



Over the past few years, we've seen the rapid advancement of autonomous vehicles. It appears, however, with more and more vehicles offering "level four – high automation," the interior space is becoming the new frontier.

Essentially, if the car is able to drive itself, what are passengers going to do during the ride? A whole slew of infotainment systems are vying to answer this question. We are seeing larger dashboards with a large infotainment interface for the driver and TV screens for the passenger. Driver seats will also swivel to inspire more quality time with passengers in the backseat.

And once the driver is no longer needed, VR and AR will have a chance to jump into this arena to provide a more immersive environment.

Holoride, a startup from Audi, presented an in-car VR experience with content created by Disney. Players found themselves shooting spaceships while in a self-driving car, with their movements being enhanced through the car movements around a racetrack.

One benefit of using VR in a moving vehicle is that it actually helps mitigate the feeling of motion sickness, allowing the customer to be immersed longer into their gaming experience, or to enjoy VR activities, such as reading a newspaper. Holoride is looking to broaden their user-base by working with ride-sharing companies.



BIGGEST BUZZ ACROSS SECTORS

THE FUTURE OF AUTOMOTIVE IS HERE

In that same vein, we also saw **Lyft's** Aptiv self-driving car getting a lot of attention this year.

We also saw how productivity can be increased by leveraging connected systems, such as Alexa and Google, to make vehicle-to-everything (V2X) more streamlined. **Qualcomm** has also jumped into the ring and is thinking ahead to entertainment systems. They are looking to get involved by creating powerful processors in three different tiers to cater to the power needs of individuals. In essence, the exterior of the car and the engine power will no longer be key factors when looking to purchase the next vehicle. The interior workings and what can keep you busy as your car drives you around, is what will create desire.

When it comes to public transportation, more autonomous cars on the roads ideally would lead to less traffic jams and a more efficient way to get from point A to point B. Bell Nexus **air taxi** takes that one step further by creating another level of transport through flight. In its current concept phase, it looks like a larger-than-life drone, but its takeaway gives consumers a second set of autonomous roadways to travel when commuting. While it's now just a scale model, Bell is working with Uber to try to have a product to market in the next five years.

Of course, as with all other industries, the upcoming rollout of 5G promises to impact transportation. Sprint is planning to create a host of Smart City applications for 5G in Greenville SC, which will include using 5G to deliver control to autonomous vehicles. The plan will start at first with a test track, and recruit start-ups to test how the reduced latency of 5G can help vehicles make even better real-time decisions.

The future of automotive is officially here and it's time for more brands to get on board.



BIGGEST BUZZ ACROSS SECTORS

HEALTH + WELLNESS: WHAT YOU NEED TO KNOW

The health and wellness space has long championed the three tenants of healthcare's **Triple Aim** – improved health, lowered costs and enhanced patient experiences. For far too long though, the ability to achieve this has been stymied: data that exists with the providers or payers is siloed from the actual patients. But now, the promise of connected health empowers the patients to take control over everything from preventative care to medical treatments through telemedicine, digital health devices and other solutions.

There is even the adjacent notion of tackling overall wellness by providing software platforms with insightful data, behavior modification experiences, and hardware that augments the human condition. But, as our recent **Digital Strength Index** analysis of the manage care space shows, the industry significantly lags in not only proficiency, but also digital sophistication.

Back in 2014, CES exploded with conversations around **wearable sensors** designed for consumers. The idea of fitness tracking played well with the relatively recent concept of the “quantified self.” Data captured by sensors would allow consumers to be hyper-focused on how their bodies respond to activity and so on. Prior to this point, consumers didn't know what they didn't know; now they can take a look in the “rear-view mirror,” so to speak.

Until now, the healthcare/wellness space hadn't made that leap forward: applications were more about past behavior than say, delivering actionable notifications or personalized care in the moment of need. This year's CES marks a milestone – we now have interfaces that can prompt real-time “treatment” adaptive products that can self-adjust to the individual.

These devices presented at CES (see following page for our favorites) are truly realizing part of the Triple Aim. The most effective applications also provide solutions for some of the most vulnerable audiences – the youth, the elderly and our pets – by integrating notifications that can alert caregivers with actionable insights and tools for adjusting care. Furthermore, with many health or wellness initiatives heading down the path of embedded or genetic-altering innovations, as a result of targeting such vulnerable audiences, delivering care through non-invasive methods proved successful.

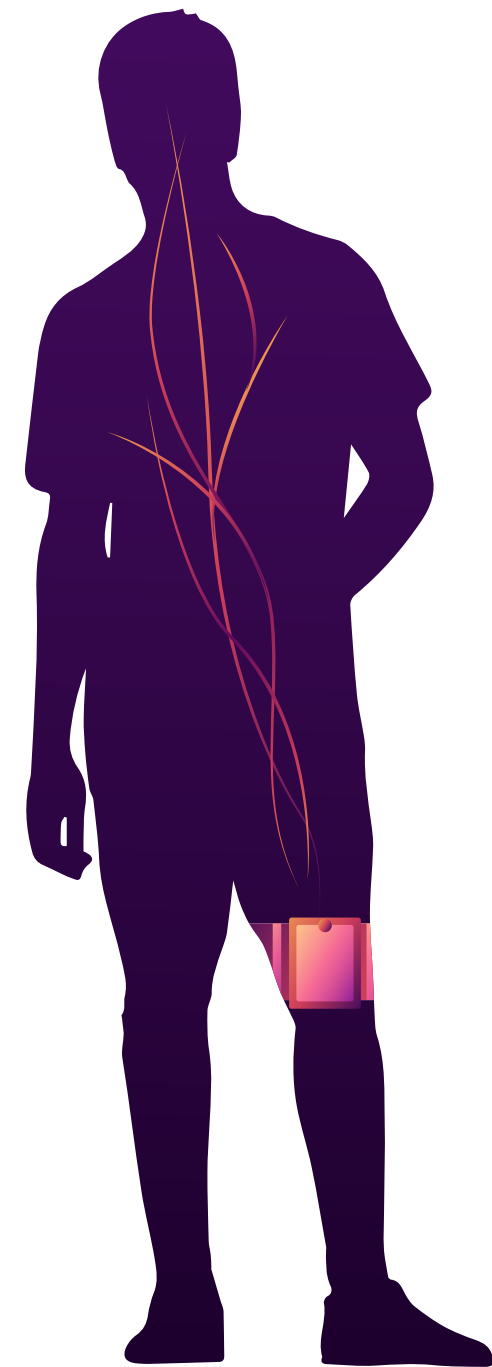
These devices also demonstrated a new level of “smart” for personal health products—contextual awareness that adjusts according to situations. Regardless of this progress, the industry has yet to see many devices with embedded interfaces; most companies showcased hardware accompanied by an “controller” app.

As our medical treatments become more DIY and participatory, it is important that the possibilities we create are balanced with a public conversation around ethics, politics and other larger societal issues. Other exhibitors were demonstrating a consumer electronics future where we will move beyond consuming content through external hardware into a world where we are actively modifying our environments, bodies and brains. Essentially, re-tuning ourselves and (in the future) being able to modify our biological makeup. What once sounded like science fiction is very much on the cusp of happening in today's marketplace and we all have a responsibility to understand the ramifications of these innovations – from an economic perspective to the ongoing sociological impact.

BIGGEST BUZZ ACROSS SECTORS

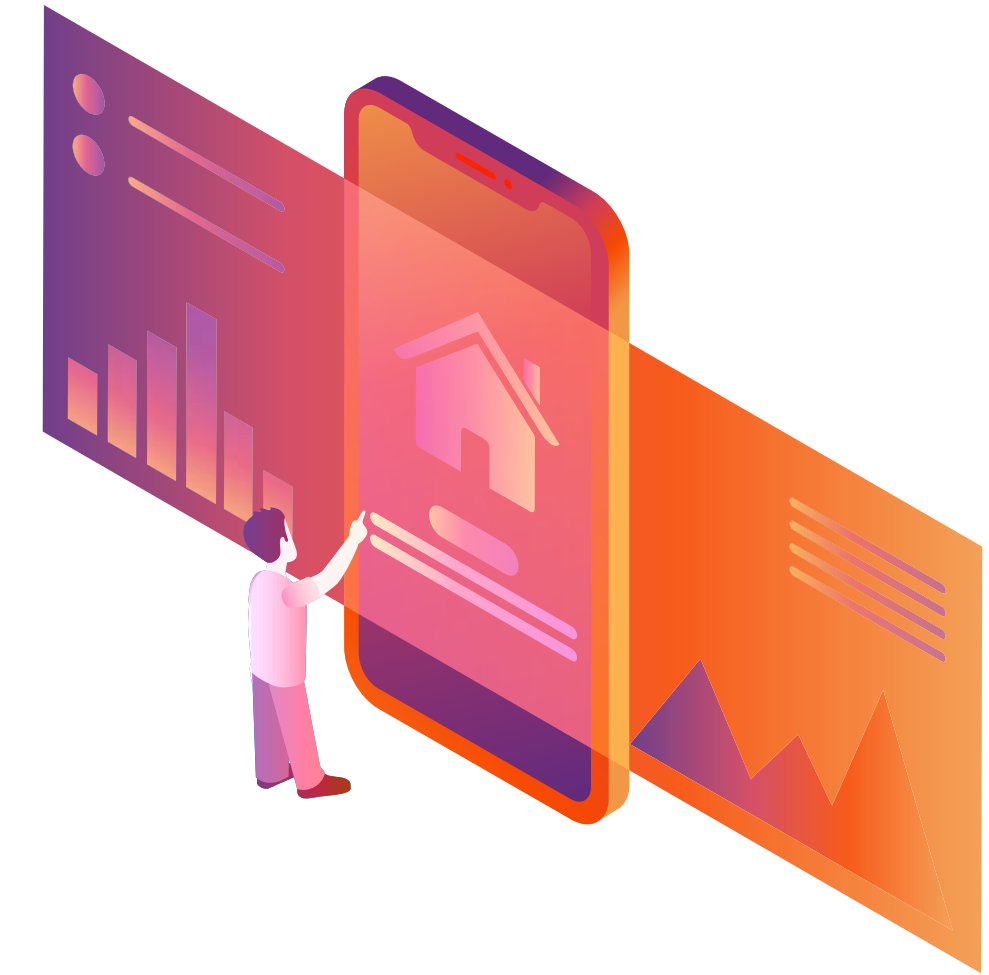
HEALTH + WELLNESS: WHAT YOU NEED TO KNOW

Healthcare is proving to be one of the largest beneficiaries of Internet of Things (IoT) as we see a rise in devices devoted to telehealth, remote patient engagement and more. Here are some of the impressive products and services we saw designed to drive Triple Aim.



Quell, a wearable pain relief technology, uses the body for signal transmission, a trend gaining steam. By using electrical stimulation, Quell can calm and block chronic pain receptor in nerves noninvasively. Wrap the belt above your knee, then use the app to adjust treatment as needed. While the experience doesn't integrate AI for predictive care, the Quell system empowers patients to take an active role in managing their care. Further, by opting for a noninvasive product design that places the patient in charge, Quell actively challenges the notion of what it means to alter one's body.

Nuheara, a company focused on “hearables,” demonstrates how applying deep learning to a consumer health product can transform a commodity product into a personalized medical device. Take the company's IQbuds: an app pairs with the hardware to allow the user to calibrate the device to their individual hearing threshold. Unlike other smart devices, IQbuds are contextually aware. The device's “audio beamforming” technology detects sounds in front of the, allowing the user to experience adaptive sound. While many products remain focused on a singular purpose, Nuheara exemplifies the importance of designing for context, which can alter and, ultimately, enhance the product experience.



Known for facilitating health and wellbeing in corporate spaces, **Delos** has shifted attention to the environment consumers spend the most time in—private homes. Understandable, since a home's environment—air quality, water, lighting, sound, and temperature—can greatly influence an individual's wellbeing. The company built DARWIN, an algorithm-powered dashboard and app that calibrates 3rd-party products to meet the personal care needs of a home's inhabitants, basically a “mission control” for preventative care. While the notion of a platform-based business model is nothing new, Delos applies context to the classic business model, thereby crafting a unique market position in the healthcare space.

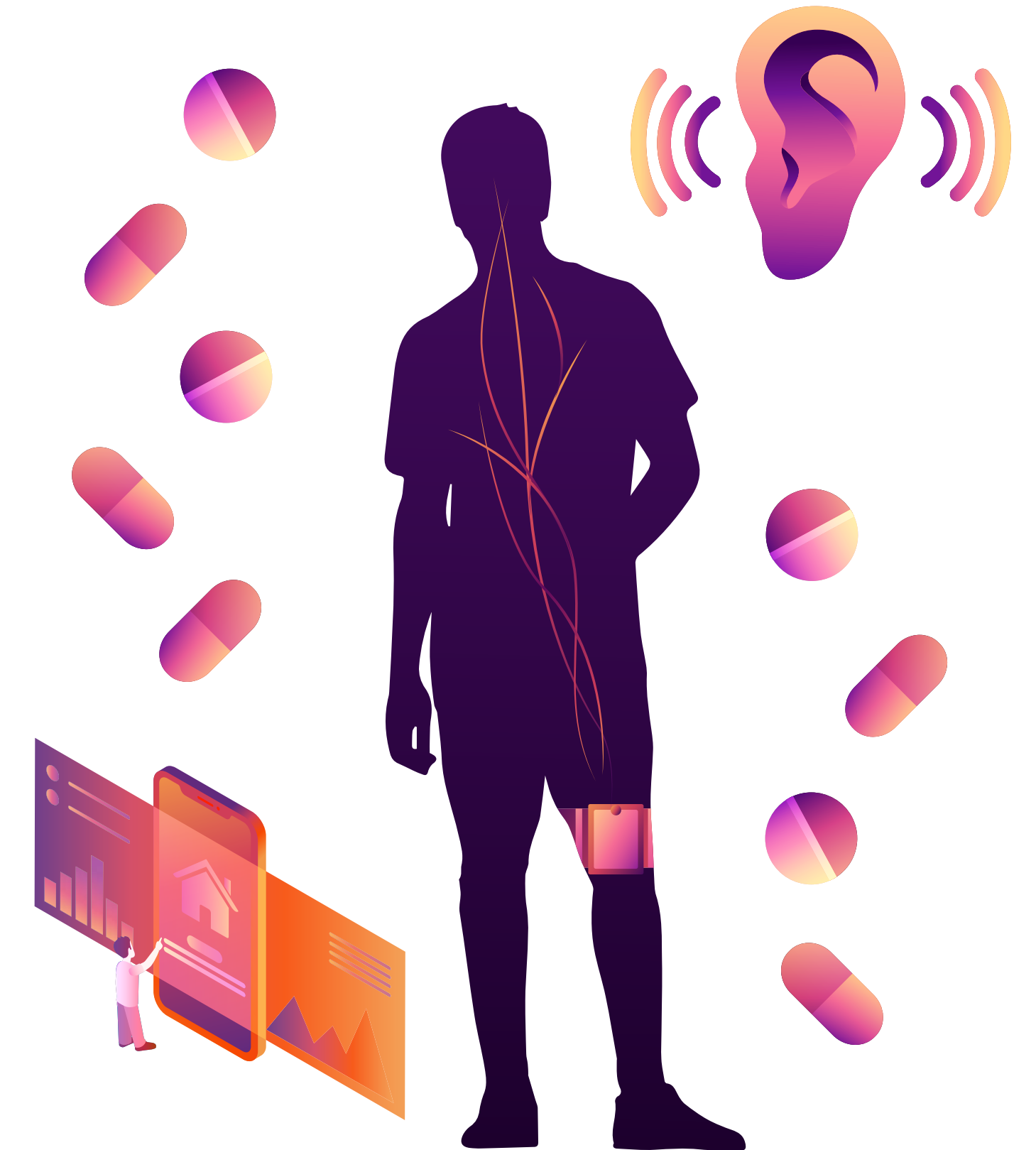
BIGGEST BUZZ ACROSS SECTORS

HEALTH + WELLNESS: WHAT YOU NEED TO KNOW



TytoCare offers an AI-powered device that allows patients to provide diagnostic data from the comfort of their homes. Doctors in the TytoCare network can then use the data to respond to patients with diagnosis. TytoCare shows what can be done to innovate in ways that reduce stress – and exposure to other sick patients – when illness or injury doesn't require specialized treatments. A visit to the doctor can now be considered the penultimate customer service experience.

Pillo is a voice-activated home health companion that manages a total wellness program for entire families. It helps seniors, people with chronic conditions and others maintain a sense of independence while following prescribed treatment plans. More than a pill dispenser, Pillo delivers therapy reminders, provides health info, and acts as a companion to keep the ones you love on track.



As more empowering innovations become commercially viable, patients and insurers alike will be able to drive healthier outcomes in terms of treatments and savings.

BIGGEST BUZZ ACROSS SECTORS

IT'S ALL ABOUT THE EXPERIENCE

For vacationers, travel is becoming less about sightseeing and more about experiencing. Rather than just 'being somewhere,' tourists (and even business travellers) are expecting to get more out of their trip and to have an authentic experience at their destination. So, rather than picking a location off the shelf as 'this year's vacay,' users are putting a lot more effort into how they will fully immerse themselves once they get there, and how they can cram as much local culture and activity into their limited time. On top of this, of course, is the desire, as with most other categories, to reduce friction and difficult moments during their time away.

One of the big trends emerging from CES in this space is the idea of personal assistants that can translate in real-time. It's always been a dream to move through a foreign marketplace and have the babble of language translated Star-Trek-style directly into your ears. CES 2019 gave us an idea of how much closer we might be to that dream.

BIGGEST BUZZ ACROSS SECTORS

IT'S ALL ABOUT THE EXPERIENCE

In the lead was Google, who created a Small World-style ride with singing characters to show off the features of its voice assistant. Among these is its Interpreter mode, with 27 languages now online. While it can handle clearly spoken phrases well, it starts to fall down when real conversation is conducted. Parties on both sides of the conversation have to wait for phrases to be translated by the Assistant. Time-consuming to be sure, but the convenience it offers is understandably powerful. Still some ways off from Star Trek, but you may see it in use by hotel concierge desks over the next couple of months.

Like most other industries, travel is transforming. Over the past few years alone, how we've traveled (Uber, Lyft), where we stay (Airbnb), and what we do when we get there (experience-driven), has seen a complete reinvention. Now, with the continued focus on destination-experience, we expect to see incredible innovations from brands in the weeks, months and years to come.



BIGGEST BUZZ ACROSS SECTORS

SPORTS: SMART UNIFORMS, 5G + GAMBLING

Sports have seen an immense amount of change over the past few years, but there is still a lot of room for innovation. CES 2018 provided the first-ever space dedicated to sports-focused technologies and expected an up-to **44% increase** in floor space this year, echoing the desire for more transformation in the industry.

First up, 5G. We know the 5G story has come up a lot in this report, but in sports, we've already seen the benefit this technology can have. Consider Verizon, who used **its 5G network** to allow fans in New York to experience last year's Super Bowl live with 180-degree stereoscopic view of on-field action. As 5G continues to proliferate, we anticipate most big sporting events to offer these types of experience to more consumers.

On the equipment side of things, Intel and Alibaba announced that a partnership to create AI-Powered 3D Athlete Tracking Tech that can improve the training process and even enhance the audience experience during the actual competition. This **should be deployed** by the 2020 Olympics and provides an opportunity for brands (Nike, Under Armour, etc.) to not only better understand athletes, but also to engage fans in unique ways. Wearable technology has come a long way since the early days, dating as far back as the **MiCoach Elite**, an app we developed with Adidas.

Lastly, and something that should truly be on everyone's radar, is the future of sports betting. In 2018, the **Supreme Court** allowed the legalization of betting to U.S. based activities, which opened up a number of opportunities

for existing and new sports leagues, franchises and broadcast distribution rights holders. David Levy, President of Turner Broadcasting, spoke at CES about their plans to integrate betting into their Bleacher Reports Live streaming service. They believe that being able to watch and place wagers on games will bring advertisers and viewers back to live sports viewing in droves. Advertisers will of course have to make decisions about how they feel about their ads running alongside calls to action to gamble, but if it works as Levy predicts, those largely engaged audiences will be hard to ignore.

No one is betting more heavily on the combination of sports and gambling than the new Alliance of American Football (AAF). The AAF intends to have players wear "smart uniforms" that collect and analyze data, and update odds for wagerers. Viewers can place bets on everything from the outcome of the game to the speed of a pass. The number of sponsorship opportunities opened up for events throughout an entire game could be staggering. "It's time for the Liberty Mutual Collision of the Game! Don't forget to place your bet on which play will win."

There's much more to come in this space as everyone is jostling for their piece of the pie but as of right now, betting is limited to only those states that have legalized it: Las Vegas and New Jersey. This hasn't stopped the NFL, NBA and NHL from signing deals with casinos and sportsbook operators like MGM, Caesars and William Hill with the assumption that statewide sports betting will be a very profitable eventuality. Marketers should be making their plans and deals too.

BIGGEST BUZZ ACROSS SECTORS

IT'S ALL ABOUT IMMERSION

The reoccurring entertainment theme at CES was better immersion. Consumers want to escape reality into their favorite streaming show or movie. They want to feel as if they are truly living the life of their gaming-character as they stream their avatar's progress on Twitch. And, they want to talk to their friends – in real time – as they engross themselves in these experiences. However, better immersion requires more powerful hardware and higher bandwidth communications across the technology stack. Virtual Reality, 8K displays, 4K displays with higher framerates, and streaming games all require incredible amounts of bandwidth, especially as consumers expect to be fully connected to millions of other participants. One **example** of this is HDMI 2.1, which was integrated into consumer displays, allowing for 4K 120FPS video and 8K 60 FPS video and uncompressed 24-bit Dolby Atmos audio.

Many years ago, media companies were threatened by hardware device companies, such as Tivo's DVR which was **launched at CES in 1999**. More recently, we've seen strategic solutions from hardware companies like Roku, Microsoft's Xbox, Sony's Playstation, and Apple TV, gain a foothold in the living room content consumption industry. However, at CES 2019, hardware devices were mainly a distraction. It is the cloud infrastructure and control over web interfaces that really matter. Cloud service providers, such as Amazon, Google and Microsoft, are now the largest companies in the world. They understood this bandwidth trend a long, long time ago and are

now very well positioned to continue launching, acquiring and accelerating their own media and content distribution services by leveraging their own infrastructures. Let's not forget, these are the same cloud infrastructures on which the majority of streaming media companies like Netflix, Hulu and HBO currently rely. Now that media companies start to feel threatened, will they turn around and start building their own hardware and infrastructure? Highly unlikely.

Despite the clash of the media and tech titans, we did see one interesting announcement that was truly a breath of fresh air when it comes to giant companies getting along. Apple managed to convince Samsung and Sony to **allow** its Apple TV services and Airplay features to be integrated into their new Smart TVs.

Maybe we'll see more collaboration in the future...but, then again, maybe not.

BIGGEST BUZZ ACROSS SECTORS

DISPLAYS WENT BIG + BOLD

Much of our leisure time is still spent in front of the TV and, despite TVs having been around for 90 years or so, there is still some innovation left in this space. While much of it is just about being bigger and better, there are a few real innovations in surface display.

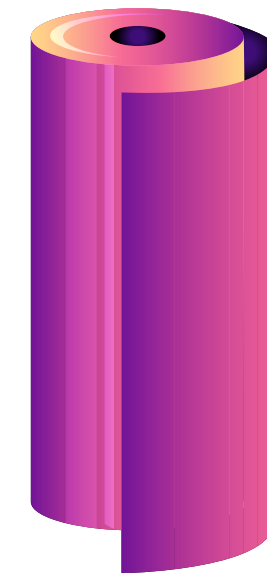
Displays went big and bold this year with just about every major display manufacturer announcing large 8K displays; from Samsung to Hisense, there was something being showcased. For the times you don't want your display on the wall, LG announced an exciting product: a **rollable display** that collapses into a soundbar-sized base when not in use. While 8K TVs are on the rise, they face the same issues 4K had before it – content. Which is why Samsung, TLC and Hisense have helped form the **8K Association** (8KA) to promote the creation and consumption of 8K content in the home and in the workplace. It's a better effort than we saw with 4K, but it's to be seen if consumers will be willing to pony-up.



Samsung's MicroLED displays are releasing with a 75 inch 4k Model.



8K Association announced, including Samsung, TLC, and Hisense in order to promote 8K content and TV's.



Rollable TV from LG to release this year.



Foldable Display Samsung phone to be officially announced at Unpacked February 20th.



BIGGEST BUZZ ACROSS SECTORS

DISPLAYS WENT BIG + BOLD

For advertising, transparent displays are incredibly eye-catching. Last year we saw several vendors in the space, but most of the displays were low resolution and relatively small in size. That said, transparent “Persistence of Vision” displays came back to CES with a vengeance. These displays look like fan blades when not in motion, but when you put dozens of them together the effect is remarkable. Photographs do not do this technology justice. It’s clear that these types of displays are getting bigger and cheaper. They are ideal for advertising in large cities so long as there is no risk of injury to humans or birds!

In addition to the standard display companies and expected technologies, such pixel density increases, many new and strange displays had their debut at CES this year. **Joto**, for example, is a playful and low tech display that allows you to transfer your digital doodles to a physical whiteboard. Also, underwater displays are going to get cheaper with the help of Favored, a Hydrophobic nano coating for displays and electronics. Another favorite was

the **Pix Backpack**, a low resolution, high brightness display integrated into a standard sized backpack.

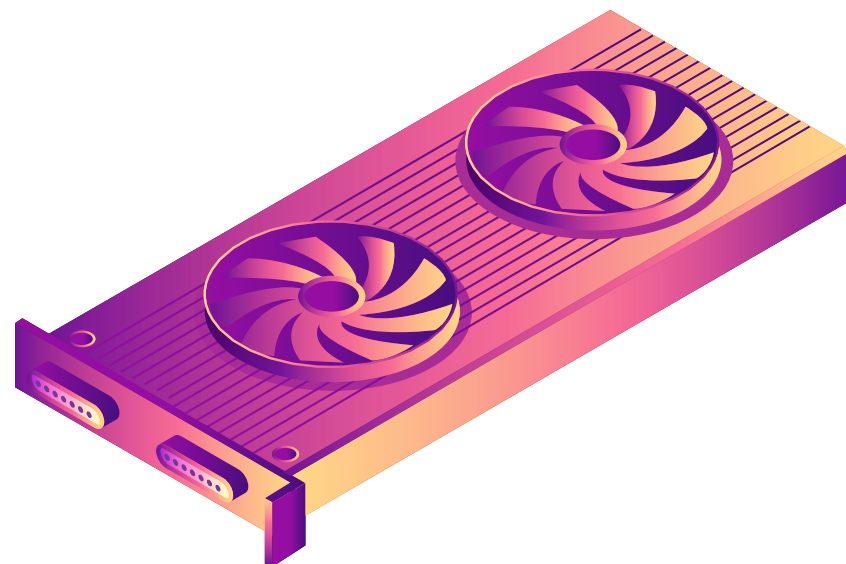
And, while more and more people find themselves interacting with some form of display, people don’t always want more screen time – sometimes they just want information without a big black screen staring them down. **Miliboo**, a French furniture company, understands this; their connected couch includes a very simple LED ring display to show volume information.

Lastly, 3D holographic displays are well on their way to becoming a “thing.” One of our favorites is the **Looking Glass Factory**, which allows the display of 3D content in an easily understandable box which never fails to impress. At Isobar we applaud the ease of use in our own testing with the display which can be seen [here](#) showcasing our 2018 holiday card.

BIGGEST BUZZ ACROSS SECTORS

ARE ESPORTS THE FUTURE?

As an industry, gaming is now larger than the movie business. And right behind it is Esports, which is growing at a staggering **30% per year**. For many traditional sports fans, it's shocking to think of millennials choosing to spend their hard earned money on attending and watching someone else play a video game, but this is our new reality, and it's not going away any time soon. Part of the reason for this Esports boom is due to the plethora of new hardware and streaming services available to professional and amateur gamers and content creators.



AMD announced new Radeon 7nm based Graphics card and confirms their continued support for the gaming industry and Esports



Nvidia to support Adaptive sync displays (Freesync) and official release of Large 4K HDR Gaming displays



Razer "Hypersense" Haptics system for PC gaming



Oculus Rift to include direct game streaming options for Facebook



BIGGEST BUZZ ACROSS SECTORS

ARE ESPORTS THE FUTURE?

Gaming enthusiasts, professional athletes and esports fans are likely rejoicing at the incredible gaming technology advancements that were announced at CES this year. For example, **AMD's 7nm based Graphics processor** and cheaper ray tracing supported GPUs from **Nvidia**. Brands such as Alienware, HP and Razer also showed their support for those GPUs in their next series of laptops announced.

Excitement also came from Razer's announcement of Alexa integration into their gaming laptops and **haptic sense PC gaming**, which has potential to enhance the esports experience for both competitors and viewers.

Features such as high refresh rates are being adopted across more and more display manufacturers, and with Nvidia announcing support for Freesync displays, more consumers will have access to a smooth gaming experience.

Oculus also created new options for experiencing VR with direct streaming to Facebook Live.

Content creation got much easier with the release of the **Elgato Key Light**, a smartphone-controlled \$200 light that reproduces the desirable professional lighting effect professional gamers are looking for.

And, when it comes to Twitch, its owner, Amazon, announced that they are launching a direct-to-consumer streaming game service. The service is currently unnamed, but it will likely go head-to-head with **Sony's PlayStation Now** and **Microsoft's Project Xcloud**. This announcement is significant for brands as it implies that there will be new media and marketing opportunities as esports continues to be fueled by spending by large tech companies. New and exciting ways to share content will surely continue to pop up.

While we expected this year to bring some real opportunity for our clients to enter the space, at this point, there is still a long way to go as brands continue exploring the best options for this constantly shifting market currently based around sponsorship.

EXTENDING OUR REALITY

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INTRODUCTION

In past years, we've reported on the exponential growth of VR, but spoke with caution. After all, daily active VR users are still just a tiny fraction of console, desktop, laptop and mobile users. Those familiar with the **Gartner Hype Cycle** know that emerging tech tends to have a "peak of inflated expectations" followed by a "trough of disillusionment." This certainly seems to be the case for virtual reality. To date, 7 million 6DOF VR headsets have been sold, according to **Nvidia**. A cause for optimism, however, is the number of VR users **nearly doubling in 2018**.

Think about it this way, if VR users double every year, we could have 50+ million daily active VR users in less than ten years. Progress will seem slow for several years, mainly because both brands and users are comparing VR to more traditional and popular computer interfaces. That said, once brands realize an emerging technology has gone mainstream, it's usually too late and they are seen as laggards to their more innovative competitors.

Unlike **previous CES events**, we've seen very few new VR headset brands emerging; however, existing brands seem to be doubling down on VR with upgraded models, and have created a clear and incremental path towards Augmented Reality. Facebook's Oculus and HTC have both announced powerful new features, and startups like **Pimax** and **Digilens** have entered the industry with improved headsets for both consumers and enterprise users. Speaking of enterprise users, we see advanced features such as native eye-tracking opening up many opportunities for analytics in wide-ranging areas from market testing to flight training.

HTC and Oculus are promising to make VR "worldscale" and easier to use by shifting their focus to consumer friendly devices such as the Oculus **Quest**, a \$400 standalone (6DOF) all-in-one solution. In comparison to the Oculus Go, a 3DOF headset released last year, the Quest is a higher-end system for those wanting a Rift-like experience without the clunky wires and expensive computers required to run VR. HTC has their own worldscale solutions, such as the **HTC Focus Standalone** headset with their 6DOF controller dev-kit which uses ultrasound + IMU sensor fusion for high performance hand-tracking.

Crucially, companies like Nvidia are dramatically increasing GPU performance with systems such as **NVLink**. While these improvements seem incremental, the steady release of new hardware helps to maintain consumer enthusiasm. Meanwhile, software breakthroughs, like Nvidia's **foveated rendering**, are helping make VR systems more computationally efficient and thus more mobile. The technique works by only rendering, at high resolution, the objects, polygons and pixels that the user is currently looking at, and rendering the periphery at a lower resolution.

In terms of new content, these big hardware upgrades could lead to more group games that can be played on open fields where co-present VR allows users to see one another's physical bodies during play. Much like AR and MR, VR headsets can be used to see real-world objects for reference, albeit in "video passthrough" resolutions. Imagine dozens of people using standalone VR headsets while playing some kind of futuristic version of tag or capture the flag. Who knows, maybe VR protective gear will become a thing?

EXTENDING OUR REALITY

SMART GLASSES

While there's still a massive gap between what consumers want and what is available, it's clear that both MR glasses and smart glasses are getting closer to the bullseye. On one end of the spectrum we have Microsoft's HoloLens and the Magic Leap's One, along with new competitors such as the **Realmax Qian**, offering advanced features such as 6DOF tracking. On the other end, we see rather ordinary looking glasses offering useful displays. Examples include, "Focals" by North, Blade by Vuzix and **Digilens** EyeHUD.

And, perhaps somewhere in between is a pair of glasses by **NReal**. Their display booth showed off a very promising demo that suggested a wide field of view and high quality visuals with a prototype inside-out tracking approach. It's not clear whether or not their Simultaneous Localization and Mapping (**SLAM**) will be anywhere near as good as their entrenched competitors, but the fact that they've made it this far is very impressive.

Nreal nearly stole the show with a pair of AR glasses similar to Magic Leap. A former Magic Leap employee started the company and aims to make them much cheaper and better than anything out there.



Becoming An Expert

In our **2018 trends report**, we wrote about how people are using technology to augment their own skills and capabilities to become experts in unexpected areas. So, how can technology help consumers gain a new expertise? Some of the interesting new products we saw at CES reveal how:



InsideCoach

Touted as the world's first and only smart soccer ball, InsideCoach provides "real-time coaching cues, statistics on touches, passes, kicks, speed, distance & more." This sensor-packed soccer ball represents a new generation of smart sporting goods. InsideCoach weighs, bounces and rolls the way a size 5 soccer ball should, while providing real-time feedback to the user during play through a wireless headset (not provided).



PicoBrew Z

Riding along with the surge in popularity of micro-brews, the PicoBrew Z is sure to find interest among connoisseurs of beer. It's the world's first modular brewing system, offering both professional and consumer hardware that can scale all the way up to full brew systems. The company also offers an online marketplace that allows you to try out brews from a wide range of beer creators.



KitchenAid Cook Processor Connect

Cooking like a real pro has never been easier thanks to this innovative extension to KitchenAid's product line. This won't make meals unattended like you might think, but rather serves as a seriously capable all-in-one kitchen appliance that boils, fries, steams, stews, kneads, chops, minces, purees, mixes, emulsifies, whips, and stirs. With this in the kitchen, any consumer can now elevate their own skills to create dynamic, gourmet meals at home.

AUGMENTING HUMANITY AND GAINING TRUST

AUGMENTING HUMANITY AND GAINING TRUST

Isobar is a global company with client relationships with countries around the world in many markets. When we look at what is happening at CES, we don't take a US angle, we look at what's happening across the world. From our vantage point, we can see not every market is moving at the same speed as Silicon Valley. That said, we're finally at the point where most mature markets – such as China and Germany – have caught up.

With movement on multiple fronts come even greater challenges to privacy, security and trust. As such, Isobar takes a measured approach to these radical changes because of the ethical and societal implications. At every succeeding CES, “what if” conversations about dystopian futures become louder. The shifting consumer mentality from “our TV is cool” to “our TV knows too much” is the type of challenge that consumer brands have either already started to encounter or soon will.

At CES 2019, just about *everything* felt at least a little bit creepy. The data needed to make products better is data consumers are reluctant to give up. Facebook, for example, has been pushing the limits of consumer tolerance for privacy invasions for many years now, and trust in their brand has decreased accordingly. Perhaps back when social media was an “emerging technology” they could use the newness as an excuse: “we just didn't know what was going to happen.”

But, it seems that none of these connected products are inherently “new” anymore – everything is connected, everything has AI, everything is getting

smarter. This is the new normal for consumer electronics. As such, brand reputation matters more than ever. Just like **digital strength**, trust has become a competitive advantage.

As we perfect these technologies, we must ask ourselves what should we do with them? Being ethical about privacy and security is so obviously important, but do we know what humankind truly wants? Maybe next year we will see the products allowing the owners to manage what data they want to share, similar to the **Brave Browser** or Tim Berners Lee's project **Solid**. We've already seen products at CES that store private data either locally or on the owners' own cloud accounts, one of them being the line of security cameras from **Netamo**. Netamo was even sold in Apple stores for a time which is no surprise with Apple being a proponent of privacy. The answer to all of this seems to lie in the **augmented humanity** envisioned by so many sci-fi novels. So the question remains, how do we use technology to be as human-full as possible?

Being Human-full in a Connected World

In the not-too-distant future, the world will be 100% connected with bandwidths in orders of magnitude greater than what we have today. Through low cost, easy-to-use devices like 5G smartphones and voice-assistant enabled-appliances, access to information and technology will become nearly ubiquitous around the world. For global brands, this opens up new markets like Africa and Southeast Asia.

AUGMENTING HUMANITY AND GAINING TRUST

Brands will have to navigate this new ecosystem, build trust and gain attention to expand their business. There are many paths to success, but innovation and digital technology infrastructure improvements are the cornerstone for such global initiatives. Armed with new and trusted digital platforms and ecosystems, brands will gain data that will enable a better understanding of what the consumer really wants.

For many consumers, unrestrained and constant use of digital technology ironically leads to the loss of free time as many people's leisure activities are becoming programmatic. The efficiencies that come with smarter devices are a double-edged sword: they give us more "free" time but what happens if everyone goes through life as if it's a never-ending YouTube channel, with each new experience unintentionally popping up after the last? This can lead to increased anxiety and widespread loss of agency. While humankind will surely come to adjust to the new digitally connected reality, brands can be proactive and get ahead of the curve. One answer to what consumers will want is a sense of mindfulness and more control over their free time. If we can create digital experiences that give time back to people without dictating how they spend their time, it could have a huge impact on human prosperity.

Another thing to keep on the radar is quantum computing. Over the next ten years we'll be able to solve problems we've never been able to solve before. We can now analyze data that we could never hack. All current data encryption techniques will surely fail once quantum computing crosses the "quantum supremacy" mark. And, security in a world with quantum computers will require new **quantum encryption**. Combine this with powerful new AI algorithms, blockchain enabled distributed computational networks, and one imagines a world where entities smarter than we are could emerge.

There was a time when this type of thinking sounded like a fringe conspiracy movement or futurist religion, but these concepts have gone mainstream, and it's more of a question of when rather than if. We are no longer emerging, we have emerged, and the outcomes will continue to pop up either in the form of consumer delight or backlash. So, how do we ensure the former? If brands are not proactive, and be human-full, there are enormous existential risks and ramifications at play.

CONNECTED AND COLLABORATIVE

In her **keynote address** at CES 2019, IBM CEO Ginni Rometty shared many interesting perspectives on technology, society, change and corporate responsibility. Much of her message aligned very closely with Isobar's approach to doing business, including our take on global innovation through offerings like the **Isobar NowLab** and our **Global Digital Transformation Consulting** practice. We both stress the importance of innovation, collaboration across borders and the reduction of barriers to trade.

The outcome of investment in innovation and progressive societal change can be understood in predictions that shows technology dramatically increasing food production and clean water, reducing fatal accidents on the roads via self-driving vehicles, and boosting safety in the workplace with the outsourcing of dangerous jobs to robots. Lastly, there's a strong probability that AI will completely transform medical diagnostics and surgery. These breakthroughs would be, in part, made possible by cooperative global innovation between startups and multinational corporations.

To help understand the impact of this, the **Consumer Technology Association** (CTA) created an International Innovation Scorecard that rates countries on their openness to innovation with respect to intellectual property, business friendliness and their legal system. We must have a global view on how emerging technologies and innovation can benefit all and be inclusive. Ideally, industry working with governments can help ensure that new regulations don't choke innovation.

Rometty pointed out that there are now more IoT devices in the world than humans. We generate 43 million terabytes of data every day but can only analyze less than 1% of it. Clearly AI will help us in this area. She suggested

that AI will eventually be everywhere, even in a fingernail-based sensor designed to collect what would otherwise be "deep data" (information not yet collected and not yet analyzed). AI could then be used to diagnose potential diseases like Parkinson's.

Perhaps the most buzzworthy topic mentioned during Rometty's keynote address was the announcement of IBM's commercial quantum computing offering, branded as "**Q System One**." This new machine contains their 4th generation 20-qubit system. It's modular and is designed for stability and continuous commercial operation. What's special about it is that IBM has designed it to operate on the cloud so researchers around the world can pay to use it remotely.

While we do agree on most of the large conceptual predictions brought forward during the IBM keynote, we do have some reservations. It's not yet clear the scope and scale of disruption that will come from blockchain and quantum computing. We hold head-mounted mixed reality in a similar regard. These technologies hold enormous promise for a better world, but there is a very real possibility that mainstream commercialization is many years away.

On the bright side, it's now clear that IoT, AI, cloud and immersive technologies are dominant trends that will pay dividends to brands who embrace them for many years to come. These technologies hold the promise to give consumers what they want: a safer, healthier, and more socially connected world.

SO, IN CONCLUSION...

As every year, CES attendees find themselves inspired, optimistic, overwhelmed and, perhaps, with even more questions about the future. While recent years have seen plenty of copycat product innovations that were unlikely to ever make it out of the showroom, this year felt different. Instead of talking about what the future might include, attendees discussed who was going to win each product category. Now that many of the existential risks are gone, investments within many product categories have increased dramatically. It was exciting to see concepts that generated buzz a few years back finally manifesting into reality.

Three key trends for this year were artificial intelligence, blazing fast data rates, and universal connectivity – all allowing us to capture data from vast ecosystems of devices that are out in the wild. Consumer products are starting to ship with out-of-the-box intelligence, and they promise to get smarter over time. In the past, consumers often dreaded firmware and software updates for fear their favorite features would break. But, the cloud is helping to assuage those anxieties. Consider devices powered by Alexa and Google Assistant. As these cloud services are upgraded, connected devices gain new capabilities without the need for new software or firmware updates and that reduces frustration for users as well as fear of adoption.

What might be the most interesting observation of CES 2019 is that we are now playing witness to what happens when emerging trends and technologies converge, leading to entirely new types of products, services and experiences. Take, for instance, the 2002 **launch** of the Roomba autonomous vacuum cleaner and how it made its way into the homes of busy early adopters. Two years later, over a million Roombas had been sold. Reflecting back, this can be seen as a turning point in household robotics, but also one of the places that we introduced the concept of using cameras and sensors to create autonomous electronics.

Now, 17 years later and we have nearly full-functioning autonomous vehicles that can leverage 5G connectivity to provide interactive content experiences to passengers. These same vehicles may potentially utilize other technologies like blockchain. Imagine “Fast Pass” style efficiencies as vehicles automatically negotiate with one another in regard to traffic management. Financial exchanges between them may allow higher priority passengers to pass those who are in less of a rush; this will help alleviate traffic and get occupants safely where they need to be, when they need to be there. In this case alone, we will see a dramatic impact to society.

With autonomous vehicles on the roads, countless hours will be given back to occupants. Will they work more and add productivity to the economy? Will they spend a little more for in-vehicle content and experiences? Will electric cars and the reduction in engine noise increase the value of real estate alongside our busy roadways? Will highway rest areas find new life and purpose with a resurgence in travel? Will rural living become more popular if people can simply sleep in their own car-bed during their daily commute? Pay close attention to CES 2020 as many of these questions will surely be answered with a plethora of new products and product categories.

These types of philosophical discussions are no longer purely speculative and can be had across many industries and verticals. The investments are happening, the partnerships are forming and consumers are eager to arrive at a future state when many of the promises of this year’s CES come to fruition. This is a great transformation and it is starting now: the age of intelligence, autonomy and augmented humanity.

Looking for more?

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TALKED ABOUT CES...

The Squeeze

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[BEYOND VOICE](#)

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In the press...

[DIGIDAY | CANNES IN THE DESERT](#)

[ADWEEK | LONG SEEN AS TECH'S SLEEPING GIANT,](#)

[MICROSOFT'S STEALTH APPROACH IS STARTING TO PAY OFF](#)

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Isobar is a global digital agency of 6,500 people across 45 markets, united by our mission to transform businesses, brands and people's lives with the creative use of digital. We deliver experience-led transformation, solving complex business challenges through our marketing, ecosystems and products & services offering. Isobar has won over 300 awards in 2017 including Asia-Pacific Digital Network of the Year. Key clients include Coca-Cola, adidas, Enterprise, P&G, Philips and Huawei. Isobar is part of the Dentsu Aegis Network, a wholly owned subsidiary of Dentsu Inc.

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