

Report based on CES 2022

Make it real

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Key insights

Healthat your fingertips

















With CES 2022 now behind us, we reflect on some of the key innovations launched this year and examine how the overall direction of travel relates to key global challenges we face as a society.

With the shockwaves of the force behind many of the product launches this year. COVID-19 pandemic still resonating throughout many consumer product categories, there are a few The concept of Human important themes that seem to empowerment seems to pin this represent a red thread connecting all together: giving consumers the many of the innovations being power and tools to make informed choices, which contribute to their launched today. own personal wellbeing, as well as reducing their impact on the Sustainability, environment.

accessibility and wellbeing are fundamental to achieving real impact

It goes without saying that consumers are becoming more conscious about the impact of their individual consumption behaviors, and the desire for more transparency, understanding and control over choices that can affect this seems to be a driving

For innovation to have real impact Today, it therefore needs to consider a few key criteria to really cut through:

Sustainability

Helping consumers reduce their own impact on the environment, while reimagining production processes to build sustainability in from the start.

Accessibility

Removing barriers to entry by making complex technology easy to use, while also ensuring that it truly

adds value in terms of convenience and impact on our daily lives.

Wellbeing

Leveraging technology to positively impact physical and mental health, by improving our own understanding of our bodies and delivering a greater level of personalization to suit our individual needs.

With these criteria in mind, Jasper van Eck, Lian van Meerendonk and Ishit Patel, Strategic Design Consultants at Qindle, investigate 3 key industry segments where technological advances have the ability to really drive meaningful change: Health, Food and Home tech.







Health at your fingertips

"It's about learning your body's unique language, a language that most of us have yet to learn how to speak. What if we could decode the messages our body is trying to send us as a way to maintain and improve health?" - Robert Ford **Abott Laboratories**







By Ishit Patel, Strategic Design Consultant

For obvious reasons, health has been in the spotlight in the last two years and the innovations in the healthcare industry most certainly reflect this.

At CES 2022, we saw that when health care meets technology, prevention and early diagnostics take the center stage.

Both play a pivotal role in maintaining good health and we are glad to see technology is helping the mainstream health care space shift towards preventative care and early detection.

Bringing Labs home, literally!

Self-care takes another leap with technology-based solutions that help us listen to our bodies.

What if every individual was given the ability to track their health, maintain it long-term and prevent crises?

Historically, healthcare has been under pressure in terms of demand and supply, with a limited number of caregivers (supply) and an increasing number of care-seekers (demand).

That's exactly where we see technology starting to play a key role, by helping people monitor their own bodies and take action,

without the need to book an appointment or incur a potentially large fee.

For example, <u>Vivoo</u> is putting full-body health check-ups in the hands of the consumer with a simple urine-based test strip. The strip is connected (wirelessly) with a digital interface that helps people understand the test results and act swiftly in case of crises.

<u>Sleepscore</u> is another such solution that helps people address challenges around sleep without needing a wearable. Its SONAR-based sleep tracking technology leverages smartphones' hardware to track the smallest movement, through the Sleepscore app.

Another important aspect of health is metabolism: when does the body start breaking down energy and how often? Understanding metabolism helps us find optimal times to eat and exercise.

Lingo, a technology being developed by <u>Abbott Laboratories</u> will enable people to listen to their bodies in real-time. It will help determine levels of Ketone, Glucose, Alcohol, and Lactate. This will be especially







beneficial for high-performance sports athletes. <u>Freestyle Libre</u> – a biosensor a fraction larger than a coin – is already helping athletes boost their performance and diabetic patients, live healthier lives by monitoring blood sugar and timing food intake.

Devices like Biosense and Avokadio are taking it even one step further, using the breath to analyze ketone and other biomarker levels to assess nutritional deficiencies and recommend dietic regimes. All it takes is a few conscious breaths to know the status of your internal processes and take action.

On the early diagnostic side, technology is helping healthcare professionals make informed decisions with speed and accessibility that was not possible before. The device that took the center stage is <u>i-STAT TBI Plasma</u> – a handheld blood test device. For the <u>first time</u>, we can understand the status of brain injuries through a simple blood test and i-STAT makes it possible within just 15 minutes. In addition, it can detect biomarkers related to various parts of the body such as the heart, kidneys, lungs, and even ovaries.

This level of accessibility can have impactful applications in the future, such as helping parents make an informed choice about their child's cough – is it just another cough, the flu or something more? The potential to provide reassurance and reduce anxiety is certainly appealing – not to mention the potential to ease the burden on professional health services.

Personalized care and active engagement

Technology is bridging physical distances between health professionals and patients empowering both for a healthier outcome.

We are also seeing emerging technologies that help doctors provide personalized care to patients remotely, and in real time. For example, <u>Abbott's Infinity DBS</u> (Deep Brain Stimulation) technology uses a device similar to a pacemaker, but for the brain,





to help people with Parkinson's to "tune out" tremors by adjusting neural stimulation. Doctors can remotely modulate the pulse to improve the patient's movement.

Similarly, <u>Vitalsight</u> by Omron is a remote patient management program that helps patients deliver their blood pressure data to doctors and receive specific guidance and prescriptions without even getting up from their chair.

Digital Therapeutics is another domain where we see patients being helped with certain mental disorders and challenges outside of the doctor's office and office hours. We are seeing the first ever FDA approved programs, such as Reset and <u>Reset-O</u> by <u>Pear</u> <u>Therapeutics</u>, which uses a digital platform to help people with Substance Use Disorders (SUDs) make progress in their therapy treatment on their

own, while their progress is tracked by mental health professionals remotely.

This not only helps the patient in vulnerable times but also amplifies the impact of in-person sessions. Products such as **Ensemble** by Happify Health and **Daylight** by Big Health are similar programs for treating anxiety related issues.

Summary

The common denominator in all these innovations is the ease with which they can be integrated with our daily lives. Moreover, we see a move towards a decentralized model, where testing, measuring, and tracking is expanding its boundaries beyond brick-and-mortar laboratories and making it accessible in places where it's needed the most. In combination with ease of adoption, it works wonders in serving today's ondemand generation.









Globally, if food waste could be represented as its own country, it would be the third largest greenhouse gas emitter, behind China and the United States.







By Lian van Meerendonk, Strategic Design Consultant

Following the successful debut of the Impossible Burger at CES 2019, and Impossible Pork at CES 2020, this year the largest consumer electronics fair in the world opened an area dedicated entirely to food technology.

State-of-the-art technological innovations showed how the sector is transforming, from agriculture to ingredient innovation, food preparation and more. The overarching themes where technology is accelerating the domain are: efficiency, convenience, personalisation and taste and, maybe even more importantly, sustainability and the reduction of food waste.

Clever Cooking

their need to make smart choices when it comes down to food intake.

Consumers will look to improve their dietary habits as they become more conscious about the importance of healthy, nutritional food intake – a trend that is accelerated by the COVID-19 pandemic. However, taking good care of our meals is often perceived as a time-consuming chore.

Many consumers are adopting dietary preferences, such as vegan, lactose-free or low-carb, making cooking even more complex. And with flexitarianism on the rise, there is a growing need for tasty alternatives to animal proteins.

The industry is speeding up to facilitate people in





With a specific focus on food technology at CES this year, it is clear that the food industry is catching up to be more technology-driven, as well as further leveraging big data, AI and IoT to accommodate the changing world and consumer needs it serves.

For example, personalized meals that match your wellness goals and lifestyle choices are delivered weekly by <u>Gastrofy</u>, a Stockholmbased start-up, who uses algorithms to collect recipes that suit the individual's needs.

We see that Fungi is taking the spotlight as a promising alternative to animal proteins, with a long list of health benefits as well as being highly sustainable in production.

Nature's Fynd is one company demonstrating this. Based on their 'volcanic fungi discovery' and breakthrough fermentation technology, they create tasty meat replacers and dairy products, producing 5.4x more protein per acre of cropland than animal proteins, with considerably less water usage and greenhouse gas emissions.

But selecting personalized meals and ingredients is of course just part of the challenge – you still have to cook! Luckily, smart appliances and robotics are gradually entering the consumer's kitchen. Food Processors, like the <u>Complete Chef</u> from Cuisinart, will do some of the heavy lifting for you, to give you a healthy, culinary and – most importantly – tasty experience.

Ultimately, the ease with which we can integrate these new services and appliances into our daily lives is perhaps the most important factor in getting the consumer on board.

Re-think our food supply

With almost 10 billion people to feed in 2050, there is real urgency to make the food supply chain smarter & sustainable.

It is imperative that the food industry innovates to cope with future demands, in which we face the threat of global warming alongside a fast growing population. Two of the major







challenges this industry faces are sustainably increasing food production and reducing food waste.

Technology seems to be the answer for farmers to optimise production while using the same amount of land. AI, automation and machine learning are entering the field, so farmers can make informed decisions for their crop.

John Deere has a long history in developing cutting-edge technologies to accelerate smarter food production and has now introduced a fully autonomous tractor that can be easily controlled through an app.

Convincing the more traditional farmers to use this new technology might need some work, but it certainly paves the way for a brighter future.

Alternatively, vertical farming is on the rise and seems to be a promising extension to

traditional farming, with indoor, fully controlled environments for cultivation ensuring efficient production through unprecedented control. Major benefits are the sustainability of production, easy scalability and enabling hyper local production.

It is imperative that the food industry innovates to cope with future demands...

<u>Grov</u> offers fully autonomised, vertical farming solutions based on a firm belief that indoor farming can provide a substantial way to address today's challenges.

However, while advances in sustainable food production look promising, it is estimated that a mind-blowing 1/3 of all food produced globally is lost or goes to waste.

For fresh foods, much of this is due to early spoilage, creating post-harvest challenges to tackle. <u>Hazel Technologies</u> has developed a solution for this, lengthening shelf life by adding small, packaged inserts to the crop, which use biochemistry to ward off fungus and mould and therefore slow the spoilage of fruits and vegetables.

The agricultural industry seems to have its full focus on becoming more sustainable for people, planet and profit, highlighting the importance of this industry in addressing the global challenges we face.

We're happy to see that major technological innovations, such as AI, machine learning and data science seem to have entered this domain permanently, to accelerate the change we so desperately need.





"Smart connected living has gone through many phases, first it was smart home, then it was connected home, and now it's becoming just home."

– Mark Benson

Head of Products & Engineering, Samsung SmartThings







By Jasper van Eck, Strategic Design Consultant

Our homes have evolved drastically over the thousands of years we have roamed the earth and the highly engineered and technological "sculptures" in which we live are a far cry from the caves that we first called home!

Yet the core fundaments of a home remain largely unchanged: protecting & bonding those who live in it.

This year's CES has shown us that technology unlocks a new dimension for the home, going from a passive "Protector & Bonder" to an active caregiver. Amongst the hundreds of smart home doorbells, security cameras and smart lightbulbs that further saturate the market, we've seen innovations that enhance the role that the home plays in our lives.

Home is where the health is

The dangers that our home shields us from are increasingly difficult to spot. It used to be simple; either an intruder (animal or human) or mother nature. Today, we have polluted water, polluted air, (device) radiation and many more invisible threats to our health.

As we progress our understanding of the body and what's good and bad for it, we can increasingly leverage technology to help (quite literally) filter out anything harmful trying to enter the home. Airthings for example, introduced their new air quality monitors that help identify and notify when the air is polluted. Or Samsung's <u>Bespoke Water Purifier</u>, that has 73 certified filtration claims and even cleans out the pipes to assure you you're drinking clean water.



But beyond air and water, we also have electric light impacting our health. As Melissa Andresko, Chief Corporate Brand Ambassador at Lutron Electronics Co. Inc. mentions "absolutely, lighting makes us feel good", at least when it's done right. Electric light impacts our circadian rhythm and adapting the light color and intensity dynamically based on time and location positively impacts our health.

harmful elements.

Beyond taking care of invisible threats, the house is increasingly taking care of people with physical or mental disabilities. For example, Essence's "Vital <u>On</u>" remote patient monitoring system aims to provide holistic in-home care by combining multiple smart devices and AI algorithms, so that people with dementia who try to leave in the middle of the night will be safely guided to stay inside through questions from a smart lock system.

As Mitchell Klein, Executive Director, Z-Wave Alliance, says: "many customers just buy thingies... and they've got a bunch of apps on their phone and they show them off and nothing actually works together". With ease of use, interoperability, reliability and data security at its core, Matter Or <u>Labrador Systems</u>' deceptively simple addresses these pain-points for both the existing autonomous robot that can carry and fetch objects smart home devices as well as the plethora of new for people with physical disabilities. devices that are coming to market.

We are expecting to see more and more of these quality monitoring devices entering the home and eventually even filtering or balancing out the As the capabilities of smart devices continue to grow, it's important we realize that only together are they best positioned to deliver seamless and proactive care in all scenarios

Does it Matter?

The question "Does it Matter?" is one we ask ourselves frequently during CES to distinguish between value adding or simply adding to e-waste.

Yet this year the question has gotten a whole new meaning. "Matter" aims to provide a single standard to tie all smart home software and solutions together. Backed by the world's biggest tech companies like Apple, Google and Amazon, this standard is set to solve some of the Smart Home industry's biggest challenges.



It is refreshing to see an entire industry coming together to solve a common problem. From the device to the software, and even down to the silicon chips powering it.

NXP for example introduced a new "Tri-Radio" chip that makes it easy for smart home device makers to build products for matter (and all the protocols that are in the market).

Samsung introduced support for the matter standard with SmartThings, but also wants to take the smart home integration to the next level. They announced the Home Connectivity Alliance, bringing together leading manufacturers of connected devices to enhance the interoperability and compatibility cross brand.

Whilst this year was big for tackling the connected home built from disconnected smart devices, we'll have to wait a couple more years to use a single interface "to rule them all" (according to Mitchell Klein).

A Greenhouse or a Green House?

The "smart" in smart home can be interpreted in many ways. In previous years we've observed a focus on the smart home for comfort. Whilst "comfort" surely still is the main focus, in this years' CES we saw some first glimpses of what "smart" for sustainability might look like.

Smart devices are increasingly helping with optimizing our consumption patterns. This ties in nicely with the increased consciousnesses around our consumption and impact on the environment. We see the home take on a larger role in connecting us to our usage or even automatically adapting it to reduce waste. Kohler's H2Wise+ water monitoring system for example provides insights into your water usage and even leaks, to save you water and your money. Or the **RainStick** circular shower that saves 80% water and up to

80% energy while providing almost double the flow of a traditional low flow shower.

Beyond local usage, we saw Samsung make a great leap to extend their sustainability impacts outside of the home. They announced their <u>partnership</u> with Patagonia to work on a washer that filters out the microplastics from the wastewater, so that it doesn't end up in our waters and seas. Seeing Samsung take sustainable responsibility beyond their own devices and tackling global scale problems is promising and we're hoping to see others follow in their steps.

With smart devices covering the full gamut from \$3 to \$300, there's choice for everyone. We see that reflected in the growth of the amount of households with a smart appliance, which in just a year grew from 19% to 27%. In addition to more people getting on board with smart home products, people that



Kohler H2Wise



15/17



already "invested" are expanding even further with the average smart devices per household growing from 5 to 8 in just 4 years.

One thing we're hoping to see more of is smart home devices with repairability, upgradeability and resource efficiency at their foundation. And even in that path for sustainable smart home devices, we need to be mindful. As for every smart device we add to our homes we might be sustainably impacting our usage of electricity, water, and time. We're also adding electricity and raw resource consumption in places where we didn't have them before. So next time ask the question, are we making our houses greener or greenhouses?

Like Lipstick on a Ham

Smart doorbells, smart lights, smart plugs, smart cameras - this year we've seen them all in new and improved forms. Each to be individually installed, plugged,

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screwed, or glued even into or onto the "Ham" (Home in old English).

Whilst individual features of these devices are rapidly improving each year, we are only seeing a handful of innovations that improve device integration. One of those innovations was Masonite's smart door that already integrates a ring video doorbell as well as well as a Yale Smart Lock. Another one was Zooz's Z-Box Hub along with their full line up of smart switches & relays that can be integrated directly into existing electricity and plumbing

Yet despite the advances in home tech products, there still seems to be a barrier in integrating these technologies when creating new homes. The issue is not whether it's possible, but whether people actually want it.

As Sean Miller, CEO at Griot Technology, explained, it's much simpler selling smart homes

to individual families. Selling "PropTech" (Property Technology) is more complex since you're dealing with, asset managers, developers, property managers, multiple tenants that all must agree on something. And as Blake Miller, CEO at Homebase, nicely puts it: "the most tech they've adopted is digital rent payments recently. And now you're asking them to adopt a smart lock access system, a community Wi-Fi network, smart thermostats, light switches and appliances. And really, their job is just to lease the apartment, get somebody in there and make sure that they're good."

Whilst there's still lots of progress to be made, the value of smart technology and "PropTech" is getting clearer quickly. Especially now with labour and supply shortages across the globe, efficiently handling resources becomes key. So a future where we're building Homes that are smart from the get-go might be closer than we think.







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