

The Connected Consumer

At some point during the far-off days of the Carter administration, Carnegie Mellon expanded its Computer Science department, leaving programmers farther away from the department's only Coke machine. So rather than trek down a couple of floors only to find an empty vending machine, or worse, a machine recently loaded with still-warm soda, they figured out how to plug the Coke machine into the mainframe to track how many bottles were left and how cold they were. And then they decided to make sure this critical tracking information was available anywhere in the world via the still-nascent World Wide Web. Et voilà, the Internet of Things (IoT) was born.ⁱ

And that's really the premise of the IoT: data collected automatically by machines, eliminating human error, in service of human needs. Here's how Kevin Ashton of MIT, widely credited with coining the phrase "The Internet of Things," explained the vision in an article back in 2009:

"People have limited time, attention and accuracy — all of which means they are not very good at capturing data about things in the real world... We need to empower computers with their own means of gathering information, so they can see, hear and smell the world for themselves, in all its random glory—without the limitations of human-entered data."ⁱⁱ

Fast forward to autumn of 2017, and the Internet of Things includes an extraordinary array of devices, from baby monitors to bathroom scales, from watches and fitness trackers to cars and trucks, smart televisions, doorbells, light bulbs, home and industrial security systems, sleep sensors, bathroom sensors, thermostats, toasters, and refrigerators. For just about all of them, there's an app for that.

"Basically, if it is not a computer, smartphone, or tablet, and it connects to the Internet, it can be called an IoT device." — Thomas Duffy, Senior VP of Operations and Services, CISⁱⁱⁱ

The McKinsey Global Institute tells us healthcare will be second only to manufacturing in embracing the IoT.^{iv} So how will IoT affect healthcare consumers? And what does that mean for healthcare marketers?

There are many ways to answer those questions, but for today, let's look at the opportunities and issues through the lens of the devices consumers are using right now.

1. Everyday consumer electronics and appliances
2. Consumer health and wellness devices
3. Devices designed to help people with chronic or acute conditions

What's Cooking?

"Connected devices are migrating out of our pockets, onto our wrists, and into our homes." — Ritesh Patel, Chief Digital Officer, WPP Health & Wellness

About a year ago, word spread of a futuristic fridge made by Swiss manufacturer Liebherr, in partnership with Microsoft's Cortana. Among other bells and whistles, it included a camera to send pictures of your perishables directly to your online grocery store for refills of mustard and mayo without any human intervention.^v

But you can already own a smart refrigerator. Depending on the brand, your fridge will include cameras inside the unit that connect to your smartphone so you can see what's for dinner, place an order for what's running low, control the temperature, and — because you know you need it — have a whole entertainment system built into the front door of the unit.^{vi} (Watch for an LG fridge that partners with Alexa, coming soon to a home appliance store near you.)

As a pharmaceutical marketer, you're already thinking about the possibilities: If you work on any disease that counts obesity as a co-morbidity, you can partner with Amazon or Walmart to help consumers choose and buy healthier food.

You can sponsor recipes that come up on demand on the fridge's smart screen. Or you can even partner with Pandora to suggest music to move to while cooking — to burn just a few more calories.

Of course, it's not just refrigerators that are being connected to the IoT — the list of "smart" everyday appliances includes everything from pressure cookers to vacuums to lawnmowers (grass allergies, anyone?).

The promise is the precision with which we can target content and services to qualified consumers in the midst of their everyday activities, either on an app, via smart TVs, or on the device itself.

Think about the ways your brand can add value to consumers' lives by giving them information and experiences they'll relish — not run from.

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Not Just Your Hairbrush: Your Personal Hair Advisor

"I believe it is a fact that everyone has to accept — healthcare is coming home sensor by sensor." — The Medical Futurist^{vii}

You want your hair to look its best. Don't we all? Soon, you'll have the opportunity to buy a brush that does a lot more than untangle those pesky knots. L'Oreal's smart hairbrush includes an array of sensors along with the normal bristles, to track both the quality of your hair and how well you care for it. A bonus: it vibrates if you brush too hard. Not surprisingly, the brush, called The Hair Coach, will share your haircare data to an app that can recommend different brushing techniques along with the best products to deal with thinning, breaking, or damaged hair.^{viii}

The Hair Coach is one of the latest inventions to join the smart scales, toothbrushes, sleep, and fitness trackers that send our personal wellness information to the cloud, and recommend behavior modifications back to us. And don't forget the home-monitoring devices that can measure and optimize air quality, temperature and other aspects of our home — and auto — environments.^{ix}

Simple behavioral tracking, though, is so 2016. The goal now is to provide services based on differentials from the norm, a benchmark based on the increasing amount of aggregated data on any given activity, and the ability of AI to personalize and contextualize services each of us will welcome.

The Internet of Medical Care

"The IoT is really the IoT — the Internet of Patients. And for the IoT to succeed, we need to shift our focus. Patient-generated

**THE MOST EFFECTIVE USES
OF THE IOT WILL START WITH
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CHANGING HABITS.**

healthcare data (PGHD) is not just another acronym for a data source; it's a person." — Todd Winey, Senior Advisor, InterSystems HealthShare ^x

Sorry for the acronyms. The IoT, or the IoHT, relies on "PGD" — patient-generated data. That's what we create via self-reported data as well as what's captured by our consumer wearables and sensors, medical devices and EHR records.^{xi}

One of the single biggest benefits of PGD is the ability to keep people out of clinical care settings, especially for chronic care, potentially saving tens of billions in direct healthcare costs. According to Accenture, 95% of payers and 91% of providers say wearable technologies are already part of their wellness and prevention programs.^{xii}

In new and experimental senior living communities around the world, residents can opt in to homes equipped with sensors that track how often they open the fridge, get up at night, use the bathroom, and other rather personal details — all in service of ensuring that they're staying safe and healthy, and notifying caregivers or HCPs if something is amiss.^{xiv, xv}

And then there's what's happening inside clinical settings. Already, mapping technology inside hospitals allows HCPs to get directions to a specific patient's location — allowing connected, secure devices to pull up the patient's EHR as soon as the HCP enters the room. Devices that monitor patients' vital signs and behaviors can alert HCPs to act as soon as problems arise.^{xi}

So the IoT is taking shape. Ultimately, one vision is to use the IoT to create what an analyst at PSFK calls "a living health record"^{xvii} based on a constant, consistent flow of data

based on our biological metrics, Rx compliance, environment, calorie intake, exercise, and accidents. Combined with factors as detailed and personal as genetic data, this living record will enable both consumers and HCPs to get ahead of looming healthcare issues, creating a better quality of life at a lower cost.

It's here that healthcare marketers ultimately face the greatest challenges — and of course, exciting opportunities:

- ▶ When data and analytics begin to point HCPs to specific drugs and devices, our job will be to engineer brand experiences that create greater patient and HCP value.
- ▶ As patient engagement becomes increasingly tied to value-based reimbursement, it will be our responsibility to use accurate, timely data to create individualized patient services.
- ▶ As tech companies race to own, manage, and analyze big data, we will have to form strategic partnerships with Amazon, Apple, Facebook, IBM, Google, Samsung, GE, and others.
- ▶ As the FDA evolves the regulatory environment, we will have to create advance plans to deal with ever-increasing overlaps of consumer's personal health, behavioral, and marketing data.

Dr. Destry Sulkes, past president of the Alliance for Continuing Education in the Health Professions, and chief data officer at WPP Health & Wellness, sums it up: "We all face a growing volume of connected health devices and new healthcare services. It's not easy to figure out what's real and helpful, vs. what appears to have amazing potential but ultimately isn't beneficial. Current in-market successes include telemedicine, doctor scheduling, self-ordered lab testing, and cloud-based glucose monitoring. Those advances that actually improve individual healthcare over the next 5-10 years will be the ones seeing the most rapid adoption."

Here's the Thing

Consumers will be using the IoT in ways big and small, passively, and actively. We will come to rely on it for accurate and instant delivery of healthcare information, products and services. We will expect to be known, to be recognized as individuals with specific habits, preferences, needs, and desires.

The new wave of data-driven, sensor-tracked and AI-delivered intelligence will provide a continuous stream of healthcare experiences that will weave seamlessly into our everyday lives, in our homes, cars, HCP offices, and, when necessary, our hospital beds.

But the most effective uses of the IoT will start with deep human insights about what people need to feel healthy and cared-for, and incorporate behavioral science to work out the most effective methods for changing habits.

With the tsunami of data being captured by the still nascent IoT, our biggest challenge as marketers is to understand the data and human-driven insights that will inspire us to create the most valuable, must-have services for consumers and HCPs alike. ^{PV}

Notes:

ⁱ <https://www.cisecurity.org/newsletter/connected-home-devices-the-internet-of-things/>

ⁱⁱ <http://www.rfidjournal.com/articles/view?4986>

ⁱⁱⁱ <https://www.cisecurity.org/newsletter/connected-home-devices-the-internet-of-things/>

^{iv} <http://www.healthcareitnews.com/sponsored-content/iot-healthcare-really-internet-patients-iop>

^v <https://tbnewstack.io/grocery-watching-refrigerators-join-internet-things/>

^{vi} <https://smarthomegearguide.com/best-smart-refrigerators-2017/>

^{vii} <http://medicalfuturist.com/healthcare-is-coming-home/>

^{viii} <http://www.bbc.com/news/technology-38503932>

^{ix} <http://medicalfuturist.com/healthcare-is-coming-home/>

^x <http://www.intersystems.com/intersystems-blog-pulse/iot-healthcare-really-internet-patients-iop/>

^{xi} <https://dupress.deloitte.com/dup-us-en/focus/internet-of-things/iot-in-health-care-industry.html>

^{xii} <https://dupress.deloitte.com/dup-us-en/focus/internet-of-things/iot-in-health-care-industry.html>

^{xiii} <http://www.mobihaltnews.com/content/report-iot-healthcare-will-top-163b-2020>

^{xiv} <http://healthsense.com/about-healthsense/what-we-do/>

^{xv} <http://medicalfuturist.com/healthcare-is-coming-home/>

^{xvi} <http://www.hospitalhealth.com.au/content/technology/article/bou-is-the-internet-of-things-empowering-staff-and-improving-patient-care--713757358>

^{xvii} <https://www.psfk.com/2017/08/iot-is-giving-patients-a-living-breathing-baseline-for-health.html>

^{xviii} <http://getresultsinaction.com/health-tech-is-transforming-the-patient-experience/>

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