The Wearable Future

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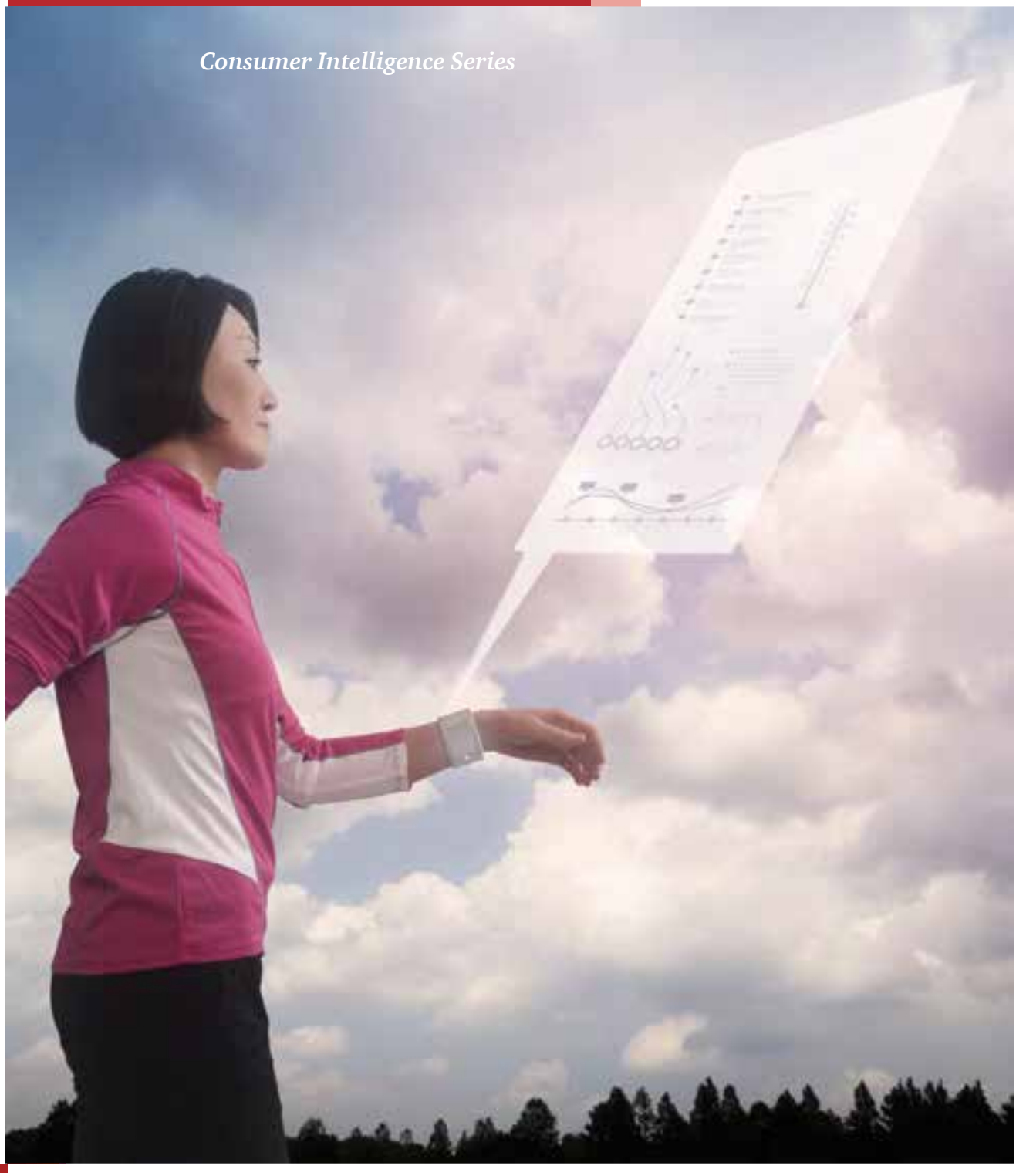
Consumer Intelligence Series



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The Wearable Future

Executive Summary

I.

There is indeed a wearable future ahead, one that can dramatically alter the landscape of society and business as we know it—and it's right around the corner. For months, we surveyed consumers and spoke with experts to find out how to navigate the road to the future—exploring the potential benefits as well as the potential drawbacks, understanding why they matter, and how they will deeply shape us as individuals and as a society. Here is a look at some of the strengths and opportunities for wearable tech—and the weaknesses and challenges that enterprising businesses must successfully navigate.

Enterprise has a huge opportunity to embrace and mainstream wearable technology.

Already, companies are putting wearables to work in the workforce—and our data shows that people are remarkably unconcerned about the net impact wearable technology could have on their job security or autonomy. And in an era where workplace loyalties are fragile, wearable technology could actually increase morale if it makes it easier for workers to produce more efficiently and provide better service, making them stronger employees overall. Likewise, use of wearable technology in employer-sponsored health and wellness programs can lead to a healthier and thereby more productive workforce. Implementation of wearable tech could have very clear implications for a company's bottom line—opening the door for enterprise to subsidize the use of wearable devices amongst both employees and consumers.

In an era where workplace loyalties are fragile, wearable technology could increase morale.

There are many applications for wearable tech in enterprise.

The potential benefits of wearable devices are manifold. Among the workforce, devices can be used as training agents, speeding up the onboarding process through real-time feedback. In retail, wearable devices can upend point of sale processes, improve customer service throughout the store and speed up purchasing. In manufacturing, wearable tech can help expedite production by creating hands-free guidance tools. In service industries, wearable devices can speed access to information in real time and enable seamless action. In medical centers, wearable devices can improve accuracy of information, streamline procedures and increase clinical trials. And through fitness devices and corresponding incentives, wearable technology can drive significant decreases in health care costs. In all of these cases, effective implementation of wearable technology stands to benefit both the user and the company driving adoption, increasing efficiency and efficacy.

But for wearables to really work, they must be anchored in human-centered design.

The practice known as "human-centered design" is one that reshapes an entire enterprise and its capabilities system around the customer or user experience. This practice is critical to the success of wearable devices—design thinking must be embedded in disruptive strategy and innovation, with a focus on optimizing the customer experience. Much of what is on the market today lacks this critical process element. The category is still in its infancy, though, and as innovation speeds along, human-centered design will emerge as a key differentiator—and a key driver of wearable success.

Consistency of data is also critical to success—and has important implications for Big Data.

One of the biggest challenges confronting wearable technology today is the consistency of data. At its simplest level, the data that wearable tech provides can be very basic and a closed experience between a device and supporting app or mobile web experience. But for wearables to be most valuable to the user, the data from the wearables experience will need to be integrated more broadly in an interoperable ecosystem, rather than acting standalone.

And when this happens, Big Data is poised to get a whole lot bigger—and better. A critical inflection point for the wearable category will be its ability to account for environmental surroundings and take data in as seamlessly as it pushes data out. Most notably, wearables cannot be divorced from the Internet of Things—whether local or remote, they must interact with other services and be used in conjunction with the cloud and corresponding Big Data applications.

Wearable tech will continue to revolutionize the health care industries.

While consumers have not yet embraced healthcare wearable tech in large numbers, they are intrigued. Companies will be well-served to create affordable products that offer greater value for both users and their healthcare partners. They will also be wise to weigh the benefits of subsidizing health care wearable devices—while consumers do not want to pay much for their wearable devices, they would be compelled

to use them if they were incentivized. 70% of consumers say they would wear employer-provided wearables streaming anonymous data to a pool in exchange for a break on their insurance premiums. Moreover, employers will help mainstream wearable devices through sponsored wellness programs, and pharmaceutical and provider networks will leverage wearables to integrate with other content and services around key solutions that go beyond prescriptions and pills to drive meaningful behavior change.

Wearable technology will likely change advertising and content as we know it.

While wearable technology has yet to gain widespread popularity, advertising companies are already conceiving of ways to deliver marketing messages directly to people who sport computerized watches, glasses and headgear. After all, the thinking goes, where there's a screen, there's an opportunity—and if projections are correct that sales of wearables could reach over 130 million units and gross almost $6 billion by 2018, that opportunity is a big one.

Wearables allow opportunity for delivering advertising with much greater context and relevance to the user—solidifying the trend away from advertising as "interruption" and toward native advertising. The more relevant and engaging the advertising, the more it is valued content, the less it feels like interruption. It becomes part of a branded experience vs. something you put up with to get to the content. In content marketing, brands talk about "activity based engagement" as the driver for success. Wearables turn advertising into activity based engagement and integrate it even more closely with other content and experiences.

The future of wearable advertising will mean that data is acutely targeted, optimizing the push and pull of information to create perfectly timed, astutely relevant, emotionally on-point messaging.

Moreover, while wearable tech is opening up more screens on which to showcase relevant inventory, our research indicates that the focus will be on serving content, rather than on serving ad units. Content curation and integration will be big themes for marketers as wearables become mainstream and combine with the physical experience.

Wearable Tech will upend retail conventions.

Wearable tech is poised to create an enhanced customer experience—cue better, more informed service; faster checkout and payment processes; greater and more reliable access to special offers and deals; and more real-time input into purchasing decisions. Wearable devices will enable consumers to integrate the at home, on-the-go and in store experiences—versus relying on smart phones, tablets or PCs to move from couch to the shelf. This process will be made possible through passive listening elements as well as active cues—what you listen to, what you "like" and what you browse. As a result of this information, retailers will be able to connect the dots between pre-store behavior and in-store behavior, reaching a new level of "interconnected retail."

The partnership landscape will radically change as wearables unite unlikely allies.

There is also an enormous opportunity for brands to collaborate with retailers through wearable tech. Promotional spending is a key source of funding for retailers for in-store merchandising— and wearables open up a huge new frontier for retailer targeted advertising and content marketing collaboration.

Wearables will provide a new frontier for media.

The media company of the future is one that combines insights with curated experiences, and finds new ways

of monetization—beyond conventional advertising and paid content offerings. As purveyors of interest-specific content, media companies will turn to wearables to open a huge new frontier of relevant and immersive experiences, helping their audience engage with the category. Wearable devices won't just unleash more ad inventory—they will provide a meaningful opportunity to drive product sales and eCommerce.

Wearable devices will change workforce training and productivity.

Already, employers are discovering valuable applications for wearable technology in the workforce. From new hire onboarding to improved employee communication to real-time instruction and feedback, major players like Virgin Atlantic, Progressive Insurance and the Container Store are catching on to the value of wearable technology on their bottom line. In addition to closely monitoring how employees are spending their time and deriving insights on how to streamline processes and maximize efficiencies, the wearable industry offers a myriad of opportunities for hands-free tutorials and easy access to information in industries ranging from manufacturing to medicine.

For wearables to succeed, they don't just need to deliver the right information—they need to deliver the right insight, and help transform that insight into action.

In an age of information overload, information for information's sake isn't winning many points with consumers. For one thing, many are skeptical of the accuracy of information provided by wearable technology. But even more, they don't know what to do with it. For wearables

For wearables to be useful, they need to deliver data that's not just informative, but also prescriptive.

to really be useful, they need to deliver data that's not just informative, but also prescriptive—giving consumers a clear understanding of action steps they need to take. To do this, wearable tech must be driven by human centered design, creating a simplified user experience and an easier means to achieving goals—much as Apple did with both the iPod and iPhone.

Wearables already have a strong incumbent challenger—the smartphone.

Throughout our research, consumers repeatedly wanted to lump the smartphone into the wearable category—to them, we are already "wearing" our phones everywhere. For wearable products to take off, they will need to carve out a distinct value proposition that a phone alone cannot deliver. And because the phone is such an everyday fixture, for the short term, at least, wearable technology will need to seamlessly integrate with our existing technology. This will lead to two spheres of wearables—primary wearables, those that stand alone or act as centralizing hubs for information, and secondary wearables, which will serve up specific information that then gets relayed to a primary wearable.

Without meaningful application, price is prohibitive.

For every demographic we surveyed, across every wearable product type, price was the leading factor prohibiting purchase. When equipped with multi-functional smart

Price is the leading factor prohibiting purchase of wearable technology.

phones, consumers are reluctant to pay for new gadgets that don't offer distinct, clearly understood utility. Price, of course, is a short term barrier as the wearables market becomes more saturated and competitive—but in the meantime, there's another avenue for wearable makers to marshal their wares into the mainstream: through businesses. We asked consumers their willingness to adopt wearable technology products if they paid for it out of pocket at different price points—$100, $300 and $500—and then asked their willingness to adopt the technology if an entertainment and media, healthcare, retail or financial institution paid for it. In every case, consumers were considerably more willing to adopt technology if an institution paid for it, despite concerns around privacy and security.

Privacy and security are consumers' main concerns regarding the impact of wearable technology.

Without question, consumers across all demographics are leery of the impact wearable technology will have on the privacy and security of their personal information. This will be a boundary that manufacturers of wearables and

the companies that use them will repeatedly have to test, navigate and respect.

And yet for all the concern, consumer appetite for revealing personal information is changing—they are growing more comfortable with the risks as the rewards become more appealing.

Cell phones and social media offer a portal into consumers' willingness to share information with each other and with brands in exchange for rewards—be it emotional validation, monetary compensation or curiosity satiation. Parents and Millennials—two groups who are most excited about the future of wearable technology—are the most willing of any demographic to share their personal information with others via wearable technology, including emotional states like their mood and their happiness levels.

The wearable category is ripe with opportunities to deliver on unmet needs.

Our research also revealed tremendous opportunities for wearables to wow consumers and win them over with meaningful relevance—territories where the category is only now on the cusp of transforming our behavior in ways that improve our lives. Key territories that emerged include stress reduction through more streamlined technology and human-centered design; strengthened connections to family and friends through more multi-sensory ways of interacting; improved personal accountability via devices that encourage goal-directed behavior; and improved customer service by way of reactive and precisely targeted real-time data. ■

Two Worlds of Wearables

II.

The Wearable Utopia vs. The Wearable Dystopia

The Wearable Utopia

Farrah Wilson opened her eyes on the first day of 8th grade feeling nervous and excited. She had just finished another night of perfect slumber—one hour of light sleep, six hours of REM—regulated by a smart eye mask, which used sono technology to lull her into an easy dream state. She used to wake up groggy and grumpy, but now, with proper rest, everyone in the Wilson household is happier.

Downstairs, a nutrient rich protein shake was waiting for her—Farrah's mom, Lara, had already gotten a report that she was a little low on iron and calcium that morning.

En route to school, traffic was light, thanks to a recent reconfiguration of roads based on data the city had gathered from wearable devices—more pedestrian lanes were added in places with heavier foot traffic, bike lanes were rerouted according to use and stoplights were re-timed.

As Farrah moved through her day, school assignments loaded automatically onto the Personal Organizer hub of her network, viewed with a quick swipe of her glasses. No more carrying heavy backpacks and books—it was all done in the cloud, preserving precious human energy and natural resources.

At lunch, Farrah pulled up her Family Ties app, which showed her brother, Jax, studying by himself at the high school. Farrah beamed into his glasses to say hi.

During their conversation about Farrah's upcoming math class, Jax noticed her mood detector shirt was signaling anxiety, so he sent a clip of a belly-flop contest to play on her smart watch. As he knew it would, the video made Farrah smile and relax.

That night the Wilsons sat down to dinner, each eating a meal optimized by health reports from their wearable devices, and shared snapshots they'd taken throughout the day. Music controlled by Jax's smartwatch played softly in the background. The air was clean, the temperature was perfect and they were, best of all, together. ■

vs.

The Wearable Dystopia

Farrah Wilson was with her friends in a self-driving car, pinging messages back and forth across the seat when a flashing note popped up on all their smartglasses: JHNYRockts @ ClubLima. GET HERE.

As Farrah nervously approached the nightclub's entry, the scanner flashed red, setting off a series of alarms. MINOR. MINOR. MINOR. Farrah and her friends were horrified —they'd forgotten about the identity chip they'd had tattooed onto their ankles last month.

When she returned home, her mom, Lara, didn't bother to remove her laserbeam youth mask as she handed down the punishment: a week without digital access to her friends.

Farrah sullenly marched off to her room, where an attempt to retreat from the world was thwarted by the constant alerts from her smart watch: *Begin Algebra Homework Now. Daily Iron Intake Low. Steps Taken—3,208; Steps Needed—6,792*. No matter how much she did, it was never enough. And though she was lonely, she couldn't seem to find the solace of being fully alone.

Slipping on her smart glasses, she swiped over to the news, where she caught a headline about the city's overflowing digital landfill, which was leaking an undetermined substance into the ground.

Farrah looked out her window at the empty streets. She remembered when people at least rode their scooters around and talked to each other. Actually talked, face to face, with no distractions.

She quickly snapped out of her reverie. As her beeping smart watch reminded her, there was much to do. *Algebra. Iron. 6,792 more steps.* ■

Wearables at a Crossroad

III.

For much of 2014, wearable technology has been the subject of great hype and even greater skepticism, fueled by speculation around whether these emerging devices will have a positive or negative impact on our lives—if they will have any impact at all.

But now is not the time to be dismissive. Apple recently unveiled its newest device, a $349 Apple Watch set to be released in early 2015. The device is "the most personal device we've ever made," according to Apple's CEO, Tim Cook, allowing users "to do things they never imagined."

the Apple Watch emerged—a sleek device that rivals project will help mainstream the entire wearable category. And when that happens—more likely, sooner than later—the implications for enterprise are significant.

After nearly two decades of a tech industry dominated by software, a.k.a. the Reign of Code, hardware is reasserting itself. Wearable devices, self-driving cars, drones, sensors and connected homes—we are now entering an era of devices, one in which these elements are part of a larger cohesion widely known as the Internet of Things.

Our research shows that there is a wearable future around the corner, it's more immediate than we think—and it can dramatically reshape the way we live and do business.

Our data shows that roughly one in five American adults already owns some type of wearable device—on par with tablets in 2012, when the adoption rate sat at 20% after just two years in the market. Today, more than 40% of Americans own a tablet.

And just as tablets faced skepticism in their early days, with consumers and critics questioning the need for new devices, so too does wearable technology. Issues around cost, style and necessity are holding consumers back. Plus, we already have the perfect device—the smartphone.

But new smart devices don't have to replace the smartphone—or any other existing device. When we asked consumers if they'd need their wearable device to replace an existing piece of technology in order to justify its purchase, 76% said no. In fact, for the short term, at least, it's likely that wearable devices will be designed to work as companion devices, just as the new Apple Watch will rely on the iPhone as a connective hub.

While fitness bands, smart watches and other wearable gadgets are already established in the market, many of them have under-delivered on expectations—be it from function or utility, with kinks in data deterring consistent usage. Amidst all this "public prototyping," as it has been called,

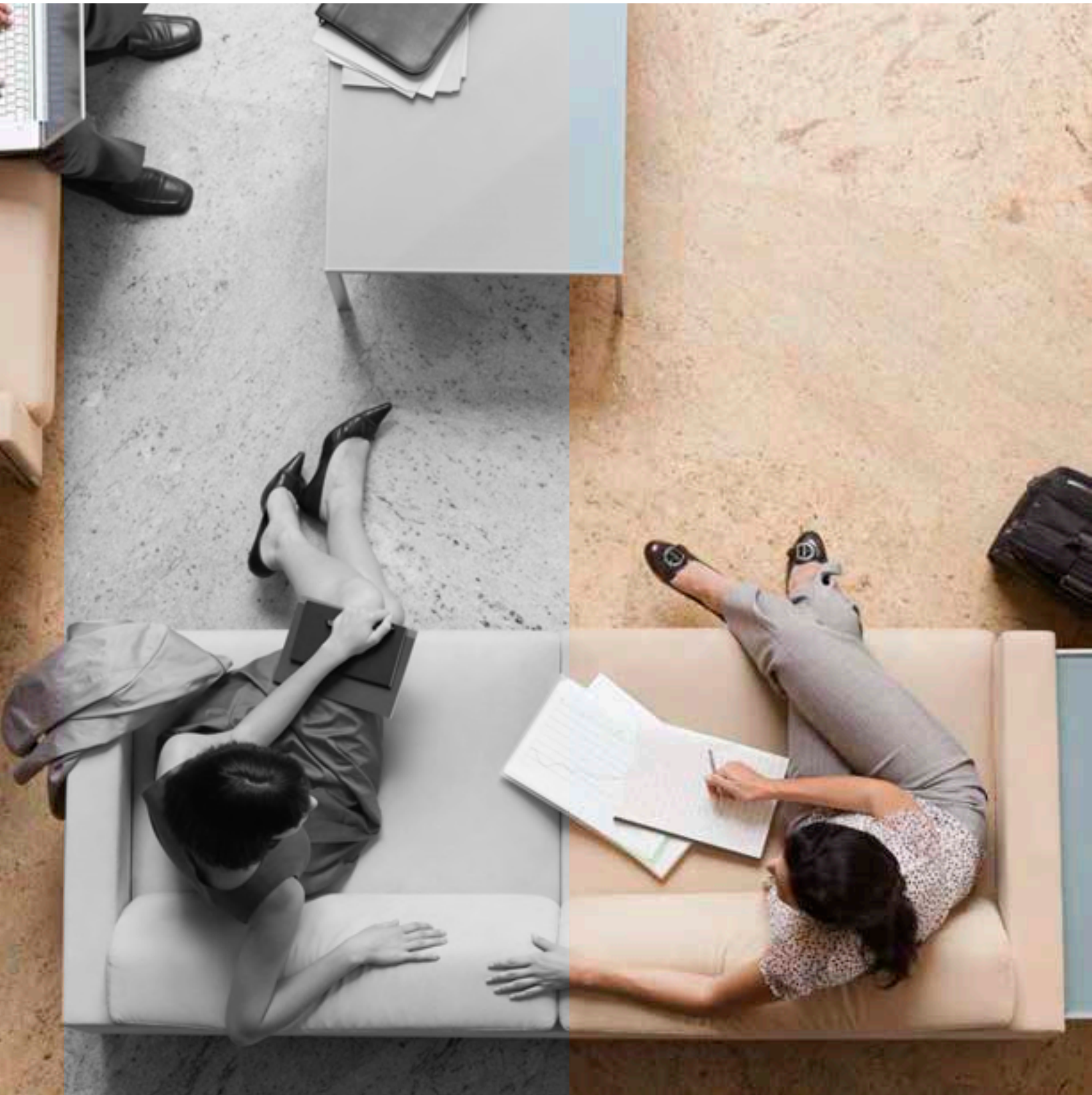
For enterprise, that means the infrastructure of how we reach, connect with and engage consumers will change dramatically—as will back-end operations. When wearables become mainstreamed, Big Data as we know it today will be dwarfed by a deluge of super data—and with it, an enormous potential to cull, analyze and interpret it to deliver insights that can unlock tremendous value, both for businesses and society at large.

Both the consumer market and the B2B market stand to be radicalized by the mainstreaming of wearable technology. Applications in sports, health care and medicine, entertainment, retail, manufacturing and workplace training are already underway.

Our research shows that there is a wearable future around the corner, it's more immediate than we think—and it can dramatically reshape the way we live and do business. There is too much at stake for this type of technology to fall by the wayside—too much potential improvement in productivity, efficiency, connectivity, health and wellness and beyond. What exactly this future will look like, no one knows for sure, but we set out to unpack and vet scenarios of how it might turn out—for better and for worse. ■

Research Methodology

IV.



What we did:

We set out to explore the many ways in which wearable tech can make an impact on society, both positively and negatively—and understand what needs to happen to realize that impact. To do this, we worked with BAV Consulting, a global leader in research and insights that's home to the largest and leading quantitative empirical study of brands and consumers, capturing decades of consumer perceptions on over 50,000 brands. Over the past six months, we've embarked on extensive research to comprehend consumer attitudes toward wearable technology—surveying the general population, talking candidly with wearable tech influencers, interviewing business executives and keeping a close ear tuned to the wearable tech chatter on social media. Collectively, this data gave us a holistic view of what's unfolding for wearable technology across both business and consumer landscapes.

Throughout our research, we used the following description to define wearable technology:

"By wearable technology, we are referring to clothing and accessories incorporating computer and advanced electronic technologies.

- You may have come across wearable technology in the form of fitness and health monitoring devices.
- You may have read in the news about or seen prototype smart glasses which can take videos or photos and project information from the Internet.
- Other examples of wearable technology include smart watches, wearable cameras, people-tracking devices and smart clothing."

Immersion session with Strategy&:

To brainstorm the wearable future and the implications it could have on both enterprise and society, we sat down with Digital Services leaders at Strategy&, formerly Booz & Company. The Digital Services team at Strategy& is now part of an integrated Digital Services Organization within the PwC network, dedicated to enabling disruptive strategy and innovation through a multi-disciplinary approach to human centered design and agile development.

In this session, we focused our discussions around the following key questions:

1. What is our definition of wearables? What is the current state of the industry?
2. What benefits are most relevant and valuable for end users? Where is the white space?
3. What areas of opportunity offer the most disruption and potential value for our clients?

We explored these questions through two exercises. First, we examined perceived benefits, ranking them based on projected impact—we plotted the relevance of each benefit to the future of wearables against the white space opportunity of that benefit.

Next, we brainstormed ideas individually—then reviewed, consolidated and collapsed ideas, prioritizing them within industries and B2B/B2C subgroups based on business impact and value to potential clients.

The Survey:

We sampled 1,000 consumers of Census National Representation (across age, income, region and gender) via a 25 minute online survey to examine the positive and negative trade-offs of wearable technology, and to gain insight into how our collective values, attitudes and behaviors will shift once these technologies are mainstreamed. For baseline comparison, we augmented the 214 Wearable Technology users in the overall sample with an additional 100 Wearable Technology users, bringing us to a total population of 314 Wearable Technology users.

Conversations with Inside Experts:

In a space as new and as ambiguously defined as wearable technology, we wanted to hear from the people closest to it, those at the leading edge of technology who could offer nuanced views of what's happening and why it matters. To do this, we held salons in two cities—New York and San Francisco—where we invited thought leaders to weigh in on the best and worst of wearable technology as it unfolds. Our panelists included:

Douglas Atkin
Global Head of Community, Airbnb, and Founder of Peers and theglueproject

Brett Lovelady
Founder & CEO ASTRO Studios

Jay Parkinson
Founder Hello Health and Sherpaa Health, Inc.

Jeff Malmad
Managing Director of Mobile at Mindshare

Ted Selker
Director of Considerate Systems Research, Carnegie Mellon University, Silicon Valley

Serin Marshall
Documentary filmmaker

Colleen Macklin
Director Communication Design and Tech. Department at Parsons

Roman Weishäupl
Innovation Officer and Founder, Twyxt

Ivo Stivoric
VP of Research and Development at Jawbone

Pavia Rosati
Founder, Fathom Travel and Former Editor-in-Chief, Daily Candy

Malte Goesche
Director of Marketing at Miselu Inc.

Josh Klein
CTO, IMAX Labs, and Hacker

Nicholas Felton
Co-founder, Daytom.com and Product Designer, Facebook

The conversations: Social Listening

We embarked on a comprehensive social listening study to detect trends, attitudes and values.

Chatter on social media can often reveal changes in consumer perceptions, for better or for worse. In January of this year, PwC embarked on a thorough social listening study to detect trends in attitudes and values when it comes to wearable technology, conducting software searches across "the social web"—including blogs, Twitter, Facebook, forums and online news outlets with comment boards. To do this, PwC created a search of relevant key words, fine-tuning and optimizing this list based on results, and then analyzed the data against situational context. Next, over a six month period, we examined nearly six million social media mentions, analyzing them for insight into how consumers feel about these emerging technologies. ■

V.

Adoption rate of wearables parallels that of tablets.

20% of Americans in 2012 owned a tablet after just two years on the market

40% of Americans own a tablet today

2012 — 2014

21% of American adults already own a wearable device

? of American adults will own a wearable device in two years

2014 — 2016

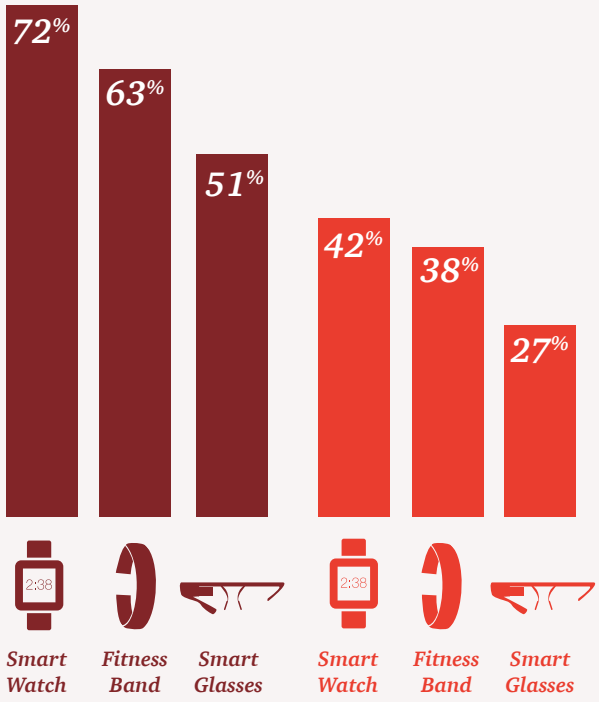
New smart devices don't have to replace the smartphone.

76% of consumers say they would NOT need their wearable device to replace an existing piece of technology in order to justify its purchase.

Enterprise will play a major role in subsidizing and mainstreaming devices.

Consumers are more willing to adopt technology if an institution pays for it.

An employer pays for it **vs.** *The consumer pays $100 for it*



46%

of respondents say their company should fund the purchase of wearable tech

Millennials are 2X more likely than adults ages 35+

to be very willing to adopt smart watch, fitness band or smart glasses if a retail, entertainment and media or health insurance company pays for it.

Wearables can improve efficiency, productivity, service and engagement across industries.

Retail:

- More integrated shopping experience
- Stronger shopping insights
- Faster payment and point of sale
- Improved customer service
- More targeted advertising
- Improved loyalty programs

Healthcare:

- Better diet & exercise accountability
- Improved access to medical information
- Higher clinical trial participation
- More accurate diagnosis

Entertainment & Media:

- More immersive and fun experiences
- Improved relevance of content and solutions
- Seamless engagement with media and devices
- More advertising inventory to drive eCommerce
- Higher sophistication of gaming solutions

What will the wearable future look like?

52% of adults agree that automated facial recognition will replace the need to remember names

56% say life expectancy will increase on average by 10 years

42% agree that the average person's athletic ability will improve dramatically

52% say that half of all TV watching will happen on wearable screens

46% say obesity rates will decrease

52% agree that people will rarely have face to face conversations

57% agree that people will rely more on their wearable devices for support than they do their friends & family

55% agree that everyone will work from home/remotely at least part of the time

63% agree that work and life will become inseparable

VI.

This year, if estimates hold, the wearable tech industry is expected to ship 19 million devices, from smartwatches and headsets to activity trackers[1].

In 2013, two million smartwatches were sold in the US. As of March 2014, 3.3 million fitness trackers had been sold in the US in the past 12 months. In June, Google put its Google Glass on the market for a single day at $1,500 a pair.

Who are these early adopters? Our data shows that current wearable users make up 21% of the population—a subset that is more affluent, more tech savvy and more educated than the general population at large. Mainstream America, however, is well aware of what's out there—nearly 80% say they are familiar with at least one wearable device on the market today.

While early adoption rates are consistent between men and women, men are notably more vocal about wearable technology. On social media, and Twitter in particular, 71% of the conversation happening is being driven by men. Among male social media contributors, gaming emerges as the most commonly referenced wearable tech subject, whereas women are more likely to reference fitness, prizes and giveaways.

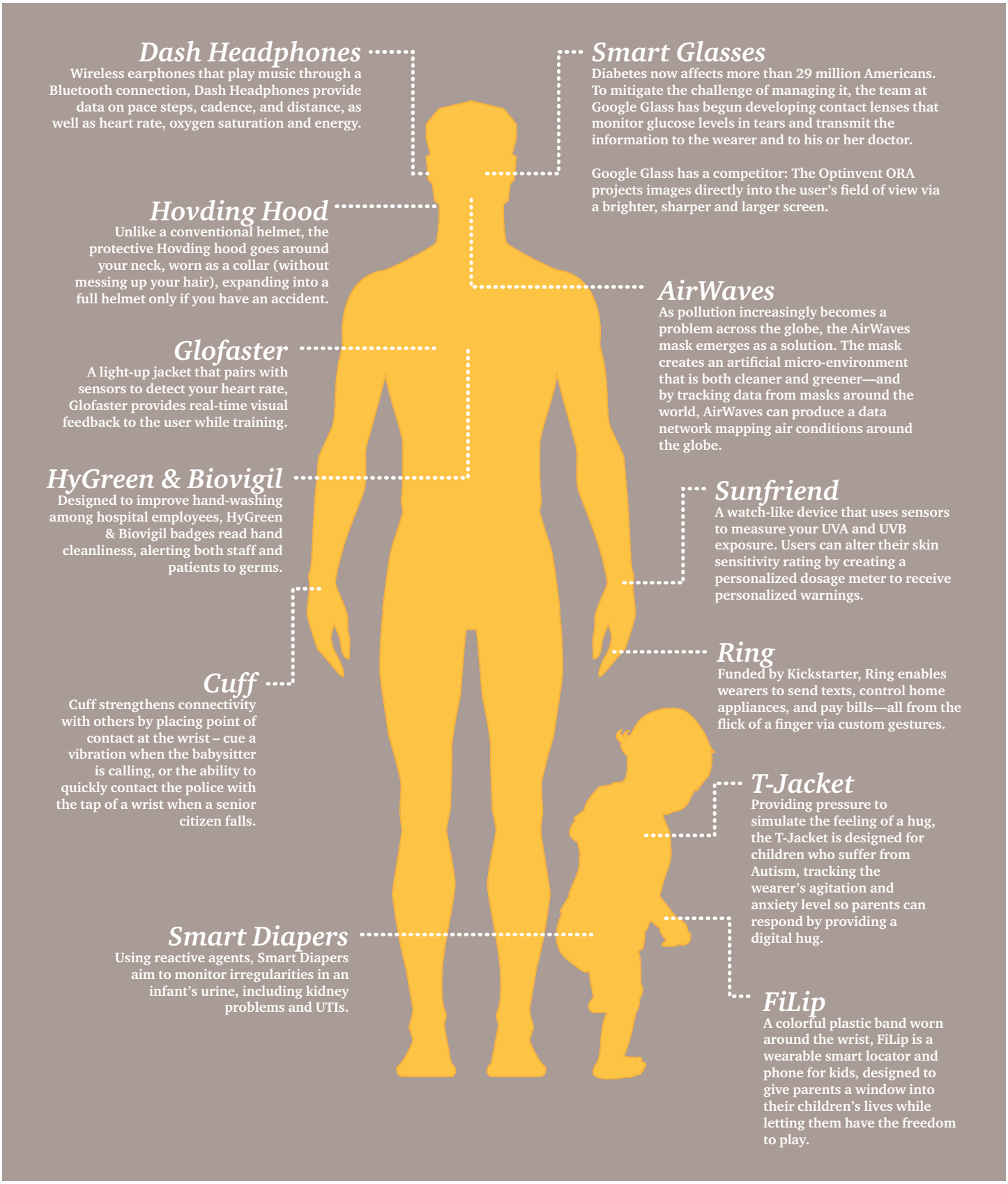
Commonly used words on social media by men:

Commonly used words on social media by women:

[1] http://www.cmo.com/articles/2014/6/16/Mind_Blowing_Stats_Wearable_Tech.html

Where on the body is a wearable? Just about everywhere.

Although glasses, smart bands and smart watches are the most commonly referenced wearable devices, developers are looking at the whole human body as an opportunity for connectedness. Here are a handful of potentially innovative products in the works.



The Business of Wearables

VII.

The Wearable Impact on Brands:

Clients consistently come to PwC asking us how they can differentiate from the competition and create stronger connections with their customers. Over the last three decades, we've seen technological innovation play an increasing role in helping brands set themselves apart in the marketplace. While wearable technology stands at a crossroads today, it is poised to offer brands a big opportunity to establish themselves.

In our survey, we asked consumers to rate how excited they'd be to experience a wearable technology product from a particular brand. Not surprisingly tech brands have the edge—Apple, Google and Microsoft all top the list. Amazon, too, ranked high—no doubt due to its innovative agenda, including streaming video and drone-delivery for groceries.

While automobile and apparel brands engender less excitement, they are also less entrenched in the technology space. This raises a question for many companies: Is it enough to utilize existing wearable technology effectively—or do brands have to find their own interpretation of it, developing their own device, as Disney did with its MagicBand?

In a market that is saturated with technology for innovation's sake, we don't need more innovation—we need more meaningful applications.

What emerged from our survey data and our conversations with experts was a clear answer: In a market that is saturated with technology for innovation's sake, we don't need more innovation—we need more meaningful applications. Virgin Atlantic, for example, has announced plans to issue Google Glass to its staff at Heathrow Airport—initially for use in its first class cabin, where the device can discreetly alert staff to important passengers by flashing their names, frequent flyer status and flight numbers on a mini-screen. Virgin is consistently ranked as one of the strongest brands in the airline category—and yet here, they're not reinventing the wearable wheel, they are simply looking for smart applications for it.

How will wearable tech change advertising?

Wearable technology has yet to gain widespread popularity, but already advertising companies are looking toward ways to deliver marketing messages directly to people who sport computerized watches, glasses and headgear. After all, the thinking goes, where there's a screen, there's an opportunity—and if projections are correct that sales of wearables could reach 130 million units in 2018, that opportunity is a big one. For now, it's certainly enough to spur ad companies to move products into development and out of the lab.

Does that mean that our bodies will become virtual billboards, blinking ads everywhere like a roving Times Square? Perhaps. More likely, though—and certainly more effectively—the future of wearable advertising will mean that data is acutely targeted, optimizing the push and pull of information to create perfectly timed, enticingly relevant messaging.

For example, through wearable technology, brands could present relevant content to a shopper while they are considering a product—say, in a grocery store, recognizing items a consumer has placed in the grocery cart and serving up relevant recipes through augmented reality. Brands could even tap body cues to tailor messaging. Sensor revealing that you're thirsty? Here's a coupon for smart water. Low on vitamins? Flash this for $1 off your favorite vitamin-loaded juice product. Serotonin levels down? Grab yourself a free soda and open happiness.

There is also enormous potential for wearable tech to combine content and community with the physical experience. Our research indicates that much of the engagement will be "next best content" for curated experiences by brands, as opposed to traditional ads. Indeed, as wearable tech opens up more screens to showcase relevant inventory, native advertising and content integration will be big themes for marketers.

Is there a creep factor? For sure, as there always is when talking about personalization and privacy considerations. "How far is too far?" will be a question brands can never stop asking or stop answering honestly. But as companies get better at protecting (and respecting) consumers' privacy on the mobile side, so too will they on the wearables side.

Even amidst consternation around privacy concerns, consumers are becoming increasingly comfortable with ads on smartphones. Done right, wearable advertising can promise more personal and relevant messaging to consumers—and bring in big business for the companies that leverage this strategically.

We asked consumers to rate how excited they'd be to experience a wearable technology product from a particular brand:

Brand	Very/Somewhat Excited
Apple	59%
Amazon	57%
Google	53%
Microsoft	51%
Nike	42%
Intel	35%
Target	35%
Disney	34%
Pixar	33%
Facebook	31%
Walmart	29%
Warner Bros.	29%
BMW	27%
Under Armour	27%
Starbucks	27%
Coca-Cola	26%
Toyota	26%
McDonald's	18%
GAP	17%
Patagonia	16%

Tech brands have the edge—Apple, Google, Intel and Microsoft all top the list. Amazon, too, ranks high—no doubt due to its innovative agenda over the past decade.

The Wearable Outlook: Entertainment, Media & Communications

Entertainment, media and communications companies have perhaps the largest opportunity for growth in the wearable technology market. The potential functionalities and enhancements offered by wearables are boundless—and the applications are only just beginning to be explored by industry leaders. The open field offers an extraordinary chance for companies to set themselves apart through useful, interesting and ultimately fun wearable innovations.

Consumers aren't looking to wearables to create new genres of communication and entertainment—but rather to improve those already in existence. We found that 73% of people expected wearable technology to make media and entertainment more immersive and fun, and the numbers were even higher (79%) among Millennials.

sensory than ever before. (Just imagine the possibilities when our avatars can actually reach out and touch someone…).

Though health and fitness applications have led the way, consumers—especially young people—want wearables to add joy, not just longevity to their lives. Millennials are twice as likely as people over age 35 to list access to media and entertainment as an important benefit of wearables. And 64% of Millennials said they would be excited to try a wearable technology product introduced by an entertainment or media company, compared to 42% of the general population.

Thus, companies need to have young people—their lifestyles, desires and aesthetics—in mind as they develop wearable tech platforms. One of the most innovative wearable

73% of people expected wearable technology to make media and entertainment more immersive and fun, and the numbers were even higher (79%) among Millennials.

The media company of the future is one that combines insights with curated experiences, and finds new ways of monetizing—not merely through conventional advertising. As purveyors of interest-specific content, media companies will turn to wearables to open a huge new frontier for relevance and immersive experiences, helping their audience engage in a category by providing relevant content and solutions.

Pertinent news, information and targeted content should pop up before our eyes. Music should be something we can feel, not just hear. Video games should be more lifelike and multi-

innovations is Mi.Mu, a digitized glove developed by British songwriter and composer, Imogen Heap, that will change the way music is made, transforming the process into a tactile artistic experience. And a company called Avegant raised $1.5 million in crowdfunding to develop smart headphones that double as movie screens when flipped down over a user's eyes. In our survey, 62% of Millennials ages 18 to 24 said they expect half of all TV watching to take place on wearable screens in the future.

Consumers also want wearable technology to make traditional entertainment experiences easier and more seamless. Disney

has been at the forefront of this with its MagicBand, which is worn around the wrist and gives customers access to amusement park features and hotel rooms, and doubles as an automated payment device.

As social media becomes more and more fundamental to the way we receive information and interact with friends and family, consumers want wearable technology to offer unobtrusive anytime/anywhere access to their favorite networks. This is especially true of Millennials, who were three times as likely as the general population to list real-time social media updates as an important benefit of wearables.

Wearable technology is poised to offer a host of new platforms and devices to make gaming more visually and physically engaging than ever before. 55% of Millennials said they'd be motivated to use wearable technology if it had a gaming feature, and companies are starting to deliver. Younger Millennials are even more drawn to gaming features: 64% of consumers ages 18 to 24 say they would be motivated by this feature. Mighty Cast's Nex Band bracelet allows users to track friends' proximity and operates as a game console enabling various so-called powers. There's also Oculus Rift, a next generation virtual reality headset designed to make gaming more immersive.

All of this opens up more advertising inventory—blank canvases for highly targeted message placements. But wearable devices won't just create more ad inventory and unleash more subscription revenue—they'll provide a meaningful opportunity to drive product sales and eCommerce. Where big publishing players like Rodale and Meredith have done a very good job of driving special issue and book sales for category engagement, the future is one of sponsored experiences—one in which the wearable may be subsidized or provided by the advertiser, who in turn can monetize it through lead generation or ecommerce opportunities. Consider that 77% of adults ages 18 to 24 said they would be willing to use a smart watch if an entertainment or media company paid for it—whereas only 53% of them are willing to buy a smart watch if they have to pay $100 out of pocket for it.

The bottom line for media and entertainment companies when it comes to wearable technology is this: If you build it, they will come—but only if it's useful, interesting and/or fun. ■

The Wearable Outlook: Retail

There is little question that wearable technology will soon be an integral part of almost every retail experience—what remains to be seen is which companies will get there first and profit the most. For consumers, wearables will provide a functionality that can improve the shopping experience and heighten convenience—these could include faster payment, more customized promotional deals or stronger insight into products and goods. For retailers, wearables will provide more granular information about customers, enable a differentiating experience, and drive more effective sales by getting targeted expertise and service to the consumer.

Already, innovative brands including Alex & Ani, Kenneth Cole and Barneys New York are launching wearable tech platforms, and consumers are prepared to see others rolled out in the near future. We found that after dietary, exercise and medical information, retail details were at the top of the list of information Millennials would like wearable tech to provide them—51% said this would be information they'd like to know, as did 45% of the general population.

Shoppers are hoping that the new technology will make their retail experience more customized and seamless, offering targeted deals and better customer service. In fact, 72% of the people we surveyed said it was very important for wearable technology to improve customer service. This was especially true among time-pressed parents, 76% of whom wanted wearable tech to make shopping a more pleasant, efficient experience.

Wearables also have the potential to integrate the at home, on-the-go and in-store shopping experiences. Through both active and passive cues—say, a wearable that listens to what media you watch, and enables you to "like" what you hear—wearables can track a shopper's preferences, and then connect the dots real-time when a shopper enters the store, creating what The Home Depot calls "interconnected retail." Rather than shopping across multiple channels, the new consumer experience will be omni-channel, fueled by wearable devices and comprehensive analytics.

Imagine a scenario where a customer who has recently been searching online for a new headboard walks into a furniture store to help a friend pick out a set of dishes. The retailer's profile management system would immediately register the presence of a potential bedroom furniture purchaser and send a notification to that customer's smart watch, pointing them in the direction of the right department and presenting a 20% off coupon for all headboards. 59% of Millennials reported that they would find this kind of application of wearable technology to be useful, as did 41% of older adults.

Alex & Ani has already had success with an app that takes advantage of Bluetooth Low Energy (LE), the location

52% of Millennials said they would be strongly motivated to use a device if it "has apps/features that reward those who frequently use it with monetary rewards."

sensing technology built into iOS 7 devices. The jewelry company pinged followers in the store using the Swirl app with content about new products. Roughly 30% of people who saw those updates visited a store and more than 15% made a purchase.

Consumers, especially the desirable Millennial market, want wearable technology in the retail space to reward them for being faithful customers. 37% of Millennials said they would be strongly motivated to use a wearable device if it "has apps/features that reward those who frequently use it with loyalty points." Even better if a company can help them earn or save cash: 52% of Millennials said they would be strongly motivated to use a device if it "has apps/features that reward those who frequently use it with monetary rewards," and 46% percent said they would want to use a device that helps them to cut back on their spending.

How we pay for purchases is also poised to be radically redefined by wearable technology. Consider the introduction of Apple Pay, which will let users make purchases simply by waving their Apple Watch in front of a reader—with the endgame of a much faster checkout process. Apple also wants to make mobile payments more secure than traditional credit card payments, requiring a thumbprint scan on the smartphone to make the tap-and-go payments, meaning a stolen device can't be used for a shopping spree. Additionally, Apple is also shifting towards a process called "tokenization," which uses a unique series of numbers to validate the customer's identity, replacing account numbers and expiration dates—meaning even if thieves hack into a retailer's payment system, they'll have a much harder time exploiting that information.

The biggest concern for consumers regarding wearable technology in the retail space is potential breaches of privacy and security. No one wants their personal data compromised and very few are interested in having it shared socially. Even among Millennials, only 14% of consumers were willing to have information about their shopping habits shared with friends and family. (And unlike music preferences, they weren't very interested in knowing what anyone else bought, either.)

When asked about specific brands, Millennials expressed the most excitement to try wearable technology products introduced by Amazon or Apple, but were also more enthusiastic than their older counterparts to test out wearable platforms rolled out by other retailers, including Target, Wal-Mart and Gap.

This signals another big opportunity for retailers—forging powerful partnerships. There is tremendous potential for brands to collaborate with retailers via wearable tech. In-store merchandising and promotional spending by brands is a key source of funding for retailers. With wearable tech, these synergies will increasingly expand not only into advertising but also into content marketing, with brands providing content to retailers that ultimately will improve the shopping experience. One avenue for this may be gamification. Brands and retailers can collaborate to link human-centered design with goal-directed behavior. For instance, reinventing loyalty to reward behaviors, rather than just purchase. This approach is of particular interest to younger consumers—64% of consumers ages 18 to 24 say they would be motivated to use a wearable device if it had some type of gaming component to it.

Consider Target, which has begun launching mobile games tied to products, like Purina's Beggin' brand. Duane Reade has introduced location-based gaming by integrating with Ingress, the Google-developed augmented reality game application in which users must collect virtual resources at real-world brick-and-mortar locations. Duane Reade has placed Ingress logos in 250 stores, signaling to users that the area is available for play. Duane Reade reports that it has seen a sharp increase in web presence since the partnership began. By strategically engaging gamification experiences and utilizing location-based gaming platforms, retailers can stay relevant and top-of-mind among consumers.

Major retailers wishing to remain at the top of their industry may not be able to ignore wearable technology—or the impact it could have on their bottom line. ■

The Wearable Outlook: Health Industries

While the smartphone remains Americans' device of choice, the tech world is creating a future of wearable technology that promises to entertain consumers, save them money and help them live healthier lives. Technology companies' interest in health and wellness have sparked the creation of a myriad of wearable devices, from fitness bands that monitor activity and sleep patterns[2] to flexible patches that can detect body temperature, heart rate, hydration level and more.[3]

These devices produce data that, often enabled with analytics, can be used by consumers to manage their health and by healthcare organizations to improve care and potentially reduce costs through systems such as remote patient monitoring.

Data generated by personal devices can be used by insurers and employers to better manage health, wellness and healthcare costs, and by pharmaceutical and life sciences companies to run more robust clinical trials and capture data to support outcomes-based reimbursement. Many consumers believe wearables can dramatically improve their health.

This potential is fueling venture capital investment in digital health and wearable tech. By mid-2014, digital health startups had raised $2.3 billion, more than they raised in all of 2013.[4] More than $200 million went to digital medical devices such as wearables.[5]

Yet these are the early stages of the technology and product adoption lifecycle. Just one in five American adults owns a wearable, according to a national survey of 1,000 US consumers conducted by PwC in 2014. One in ten uses it every day. At the Rock Health Innovation Summit in August, Genentech CEO Ian Clark called health wearables "a bit trivial right now."[6]

"I don't doubt that the wearable piece is going to be a productive business model for people," Clark told an audience packed with health wearables entrepreneurs. "I just don't know whether it's going to bend the curve in terms of health outcomes."

As wearable technology becomes cheaper and more sophisticated, and data quality improves, these devices and their associated apps will become a part of consumers' lives and the health ecosystem. The devices will need to be seamlessly interoperable, more self-sufficient and free from additional steps such as syncing and powering. Companies will need to interpret and use data streaming from these devices. The software side of wearables will be emphasized as much as the hardware. Consumers will place greater value on companies that can help them use data to improve their health.

[2]http://www.misfitwearables.com/

[3]http://www.mc10inc.com/

[4]Rock Health, "2014 Midyear Digital Health Funding Update: Obliterating Records," http://rockhealth.com/2014/06/2014-midyear-digital-health-funding-update, June 30, 2014.

[5]Rock Health, "2014 Midyear Digital Health Funding Update: Obliterating Records," http://rockhealth.com/2014/06/2014-midyear-digital-health-funding-update, June 30, 2014.

[6]Lee, Stephanie M., "Genentech CEO wonders if wearables craze is 'a bit trivial,' San Francisco Chronicle, http://blog.sfgate.com/techchron/2014/08/21/genentech-ceo-wonders-if-wearables-craze-is-a-bit-trivial, Aug. 21, 2014.

70% of consumers said they would wear employer-provided wearables streaming anonymous data to a pool in exchange for a break on their insurance premiums.

In the summer of 2014, PwC's Health Research Institute (HRI) and Consumer Intelligence Series sought to better understand American consumers' attitudes toward wearables through a consumer survey, focus groups with technology thought leaders and interviews with executives from inside and outside of the health industry.

"This is like the early days of the mobile phone, when the phones were bricks," said Ivo Stivoric, vice president of research and development at Jawbone, during a PwC focus group held in New York City. "We are at the early stages."

Glimpses into the health wearable future are visible. More than one million customers transmit data from fitness trackers to Walgreen Co., in exchange for points that can be used like cash in the company's stores and through its website for many products.[7] Physicians at Dignity Health use Augmedix's Google Glass program to enter patient information into electronic medical records. Ochsner Health System's "O Bar" sells a curated selection of wearables and apps that can be "prescribed" by physicians.

And in September, Apple unveiled a smartwatch that can monitor heart rate and activity, one more step toward creating a one-stop-shop for health information for consumers and their healthcare providers.[8] Apple CEO Tim Cook called the Apple Watch "the most personal device we've ever created."[9]

A wearable world is emerging, slowly, helping build a New Health Economy (please see HRI's report on health wearables, Health wearables: Early days).

[7] Interview with Dr. Harry Leider, Chief Medical Officer, Walgreen Co.

[8] http://www.apple.com/live/2014-sept-event/

[9] http://www.apple.com/live/2014-sept-event/

The Wearable Outlook: Technology

In its nascent stages, wearable tech was focused primarily on its end user, the early-adopting consumer, pulled in by the lure of intriguing new gadgets. But wearable tech is at a crossroads, and it's looking down a path in which IT is a driving force. No doubt, IT—and with it, human-centered design—will stand at the epicenter of the wearable tech movement. More and more, wearable tech products are being designed with business applications in mind, all ripe with the promise of improving workplace productivity and the overall efficiency of organizations.

up the information without having to leave the customer to visit a computer terminal.

On the financial back end, payment processing is poised to get a boost from wearable tech. Consider PayPal, which is developing a new app for Samsung's Gear 2 Smartwatch that will enable consumers to easily pay for products and services right from their wristwatch inside retail stores. Or Apple, which recently introduced Apple Pay, designed to let users make purchases simply by waving their Apple Watch in front

77% of respondents said an important benefit of wearable technology is its potential to make us more efficient and productive at work.

In our survey, 77% of respondents said an important benefit of wearable technology is its potential to make us more efficient and more productive at work. 70% say they expect their workplace to permit the use of wearable technology, and 46% say they think their company should fund the wearable technology, rather than a BYOD (bring your own device) model. Millennials in particular are enthusiastic about applications of wearable technology in the workplace—83% say its potential to make us more efficient and more productive at work is an important benefit, and they are more than twice as likely as adults ages 35 and older to say they want their device to provide information about their personal productivity on the job.

The potential for applications in the workplace is staggering. In retail stores, wireless headsets, wrist displays and tech-equipped lanyards are in the works to enable employees to access information on-the-go, meaning sales staff can look

of a reader—with the endgame of a much faster checkout process. Additionally, Apple is also shifting towards a process called "tokenization," which uses a unique series of numbers to validate the customer's identity, replacing account numbers and expiration dates—making it much harder for hackers to exploit information.

For companies in manufacturing and field service industries, the impact of wearable technology is already underway. Smart glasses can pipe instructions directly into workers' line of vision, allowing them to solve issues faster—and save considerable dollars along the way. Construction workers are using wearable technology to gain vision inside piping and walls, just as doctors and medical providers are becoming equipped with technology that significantly improves access to patient data.

Net, if wearable technology has the potential to bring higher productivity and a better bottom line, IT departments will

be the agents to shepherd it through. This doesn't mean that companies need to create their own wearable device, but the sooner companies start strategizing around wearable tech and appropriate applications for it, and the sooner they get IT departments primed, the better poised their business will be to capitalize on competitive advantage.

So what do IT teams need to be aware of? For one, creating a greater standardization of platforms. In our survey, 83% of respondents said "making technology simpler to use" was an important benefit of wearable tech. 41% listed "seamless integration with other devices" as a top three reason to adopt wearable technology. And from an enterprise standpoint, simplicity and seamless integration of wearable tech across platforms will be critical to yielding successful productivity and bottom line improvements.

CIOs and IT departments also need to be aware of are potential setbacks that may come when introducing new wearable tech. Navigating the user experience will need to be fully comprehended and explained before launch, particularly with devices like smart glasses that have lower rates of user experience. To that end, wearables will require a new set of design requirements and user experience requirements that IT may not have invoked in the past.

At the forefront of these requirements will be "human-centered design," a way of thinking that reshapes an entire enterprise and its capabilities system around the customer or user experience. This approach necessitates many attributes of a startup—prioritizing creativity, speed, flexibility and a willingness to take risks in exchange for greater rewards. For wearable tech, this means leveraging devices not just to collect data, but to synthesize, analyze and draw meaningful insights from that data in ways that reflect true consumer needs.

Infrastructure readiness is another area of focus for IT teams—they'll need to be prepared to harness information and resources that they haven't had to access before, and this learning curve will need to be expedient, particularly when it comes to integration with legacy corporate systems. Moreover, those legacy systems will need to be adapted—most are built to accept form-based data entry, compared with new wearable-based systems that intuitively harness and access data and feedback. CIOs and IT departments will need to figure out how to effectively unite the two approaches, new and old, until there is a clear argument for removing and replacing existing investments.

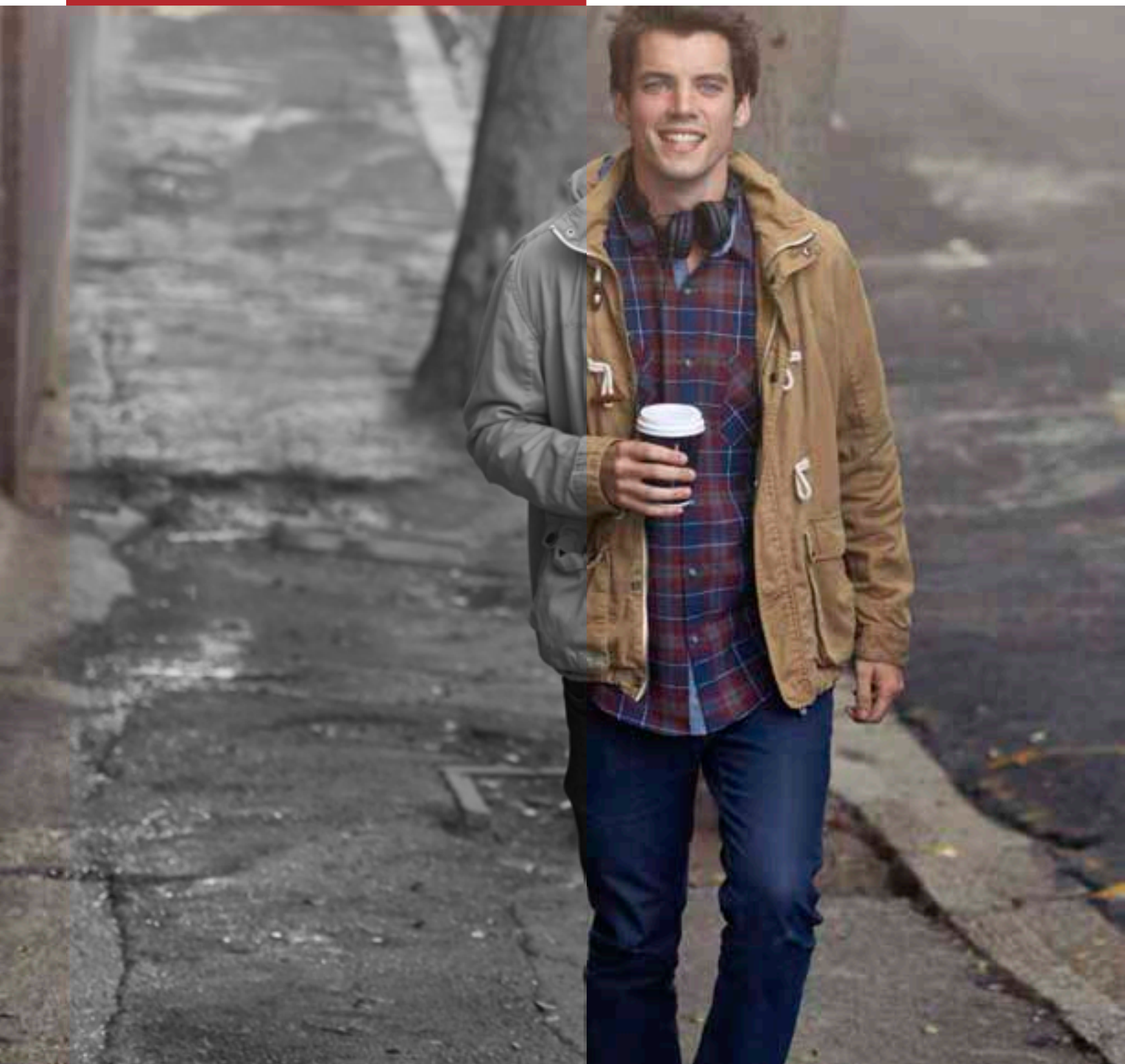
Lastly, companies with an eye toward wearables should be prepared for potential regulatory issues that emerge as the category implementation grows. In our data, consumers showed heavy concerns around privacy and security—82% said they were concerned that wearable tech will invade their privacy and 86% expressed concern that wearable tech will make them more vulnerable to security breaches, a concern that outweighed any of the benefits named. Companies will need to proactively understand how to navigate these boundaries and the regulation that will inevitably come with it.

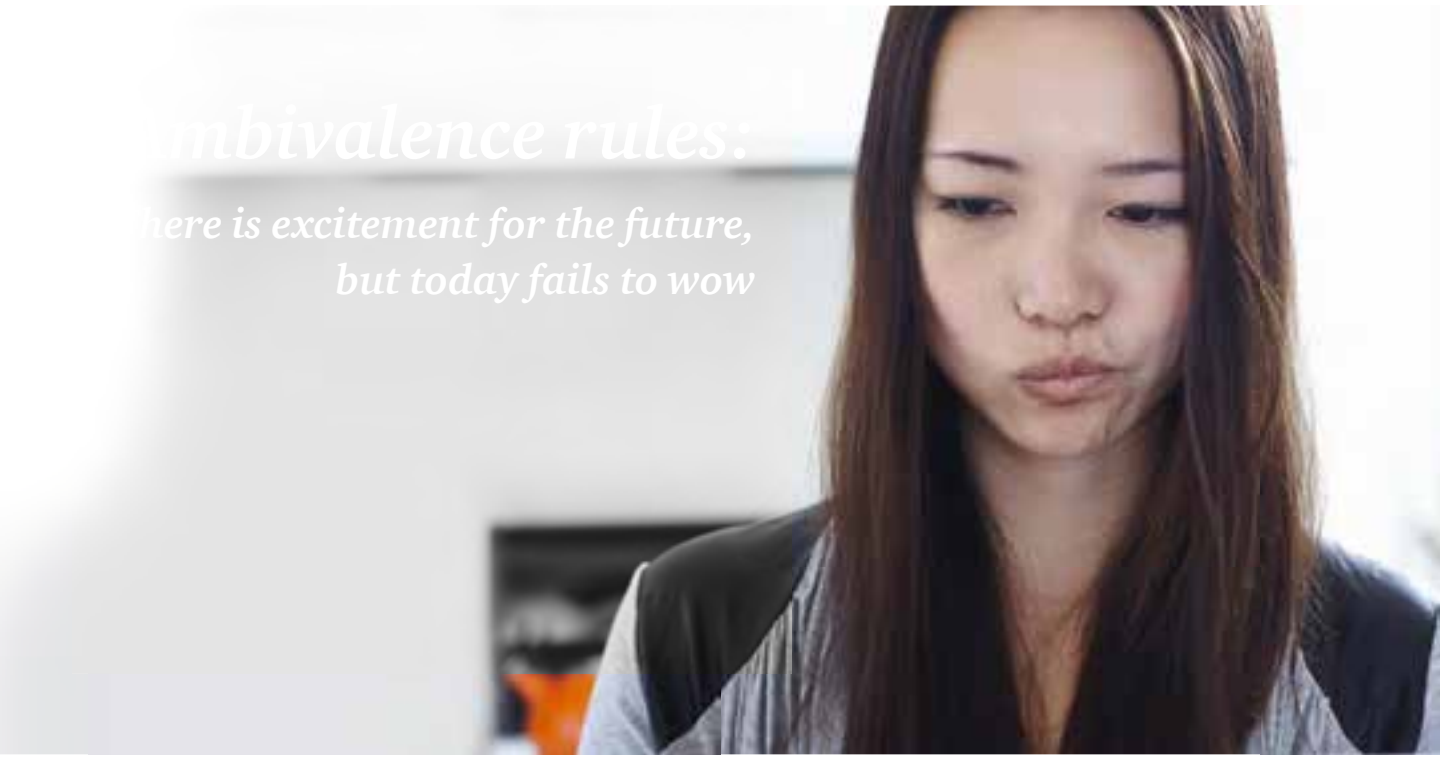
And yet as Pebble's Miriam Joire said at the Wearable Tech Expo in New York City this summer, "You need to trust the tech world right now and give us your data…. Privacy and security are super important, but we also need to start to trust our technology."

Brands that want to remain competitive in the future must lead the charge for that trust and prepare with strategies to leverage the value of wearable tech for both employees and consumers. ■

Consumers and Wearables

VIII.





When it comes to wearable technology—and the perceived future in store for us—enthusiasm is mixed: When asked "How do you feel about the future of wearable tech as part of everyday life?" 41% of respondents said they feel excited, while 59% expressed concern. Across demographics, Millennials and early adopters are the most enthusiastic—53% of Millennials and 54% of early adopters say they are excited about the future of wearable tech.

And yet, across the board, for the large majority, the intrigue is there. Despite their concern, consumers recognize enormous potential in the emerging category—but right now, they are skeptical that wearable technology can deliver on that potential. Simply put, the existing marketplace isn't executing the "wow" factor that comes with all the hype. And in the absence of that "wow" factor—without meaningful, life-changing wearable technology in place—it's easy for consumers to envision the negative consequences of technology for technology's sake.

Part of the issue at hand for the wearable category is that we've conditioned consumers to expect instant gratification and ease of use—and yet the wearable market is still in its nascent stages and complex upon first encounter. The lackluster enthusiasm from consumers may be less of an experience problem and more a function of hype: High expectation is driving fast adoption, and yet that expectation is not satisfied.

However, there is real interest in wearables—and a desire among consumers to see companies use human-centered design to unlock this opportunity for disruptive innovation. After all, Apple wasn't the first to market with a music player—it was just focused on using human-centered design to drive rapid behavior change by making technology simple and addressing latent needs.

In our survey, we asked respondents to weigh in on both the importance of the potential benefits wearable devices can provide and the likelihood that wearable tech will be able to provide that benefit. In almost every scenario, consumers felt that the likelihood of wearable technology providing that benefit fell well short of its importance. This is less an indictment of the wearable category—and more an opportunity for wearables to evolve in ways that address consumer needs and use rigorous data and analytics to drive impactful change in the way they live and work.

Information without action is meaningless.

The emergence of the wearable category has been riddled with inaccuracy setbacks and aesthetic deterrents, but in large part, wearable technology today is underwhelming because the amount of data it provides us is overwhelming. In both our qualitative research and in open-ended responses to our survey, we heard consumers say that while they appreciate the data that wearable technology feeds them—cue heart rate, step count, oxygen levels—they have little sense of what to make of it or how to adjust their lives accordingly.

And herein lies the fundamental flaw in today's wearables, a truth that too many device makers seem to be overlooking: It's not enough to have all the information we need—instead, we need insights that are actionable. This requires giving us accurate information in real-time, and then filtering and synthesizing that information using advanced analytics, ultimately providing insights that lead to a better decision or a change in behavior.

In the absence of an actionable use for all this data, wearable technology still seems irrelevant to many consumers—or at least dispensable. Consider, for instance, that 33% of consumers we surveyed who purchased a wearable tech device more than a year ago now say they no longer use their device at all or use it infrequently. This suggests that these devices are shiny new toys, rather than lifestyle changers.

Net, 8.7% of consumers said they don't think they'll use any kind of wearable device. This reinforces the importance of human-centered design and an agile approach to test and learn to optimize the consumer experience—creating devices that fit seamlessly into users' lives to provide a value-add that cannot be derived easily or effectively through alternative methods.

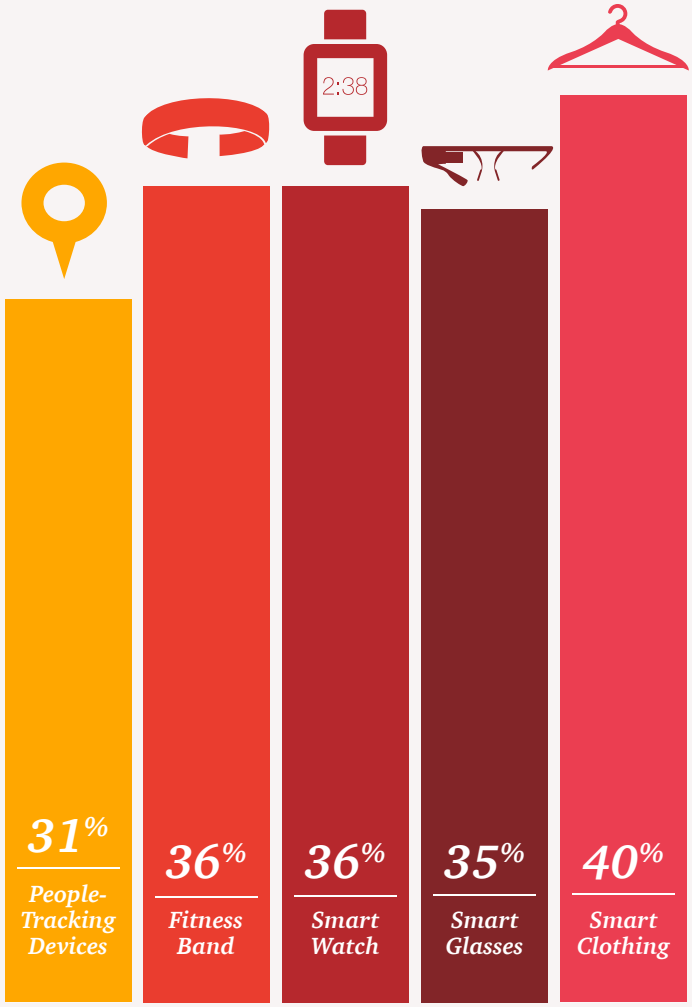
"If I head out the door in the morning and leave my fitness band at home, I'm not going to turn around to go back and get it. If I leave my phone at home, you bet I'm going to go get it."

– Jeff Malmad, Mindshare

"Just having information is useless. What we do with it is important."

– Pavia Rosati, Fathom Travel

According to our survey, among the general population a strong percentage of people do not think they'll actually use these products:

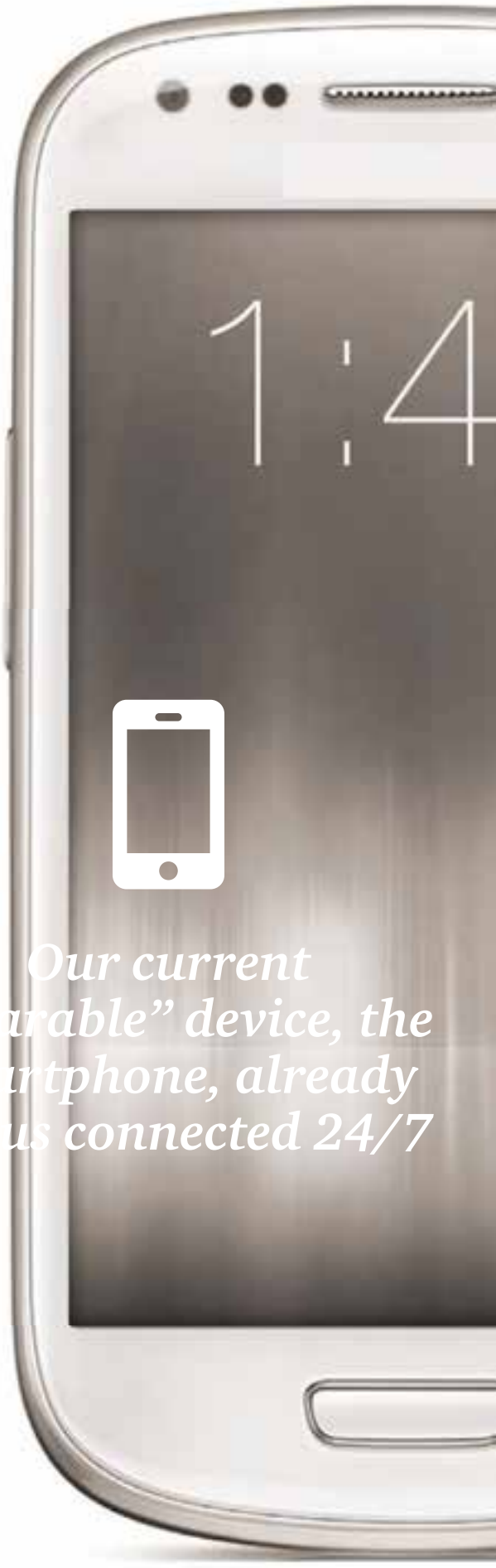


Wearables primacy, consistency and data tuning

Throughout our research, we heard a common sentiment from consumers: "I already have a wearable device—my smartphone." In this context, there are two avenues for the wearable tech category to navigate: Primary wearable devices and secondary wearable devices.

Primary: Primary wearable devices will act as central connectors for all kinds of devices and information. Today, indeed, the smartphone is a de facto wearable device—a central hub for accessories and data gathering. In time, smart watches and smart glasses will emerge as key primary devices, acting as a central collection portal for different wearables. (For now, the Apple Watch is relegated to secondary status, still reliant on the iPhone for hub connectivity.) The allocations of these hubs may serve to gather and host specific data, as in the medical field, or serve more broadly as integrating hubs, like the Apple Health Kit.

Secondary: Secondary wearable devices will be intended to capture specific action or measurement, data that can then be funneled back into a primary wearable device for more comprehensive context, analysis and, ultimately, actionable insight. Examples of secondary wearable devices include shirts, shoes, helmets, fitness bands, badges and more. These secondary devices will be companion devices to primary wearables—and as secondary devices become more prolific and on point, the quality of data will improve, making the entire wearable ecosystem more powerful, more impactful and more actionable. While primary devices will need to be mainstreamed in order to make secondary devices applicable, the secondary market stands poised for the most growth as innovation continues to be expanded and refined.



According to IDC forecasts, both primary devices (shown as “smart wearables”) and secondary devices (shown as “smart accessories”) are expected to see a marked uptick in growth over the next few years.

Forecasted US Wearables Shipments

Share of shipments by product category

Complex accessories

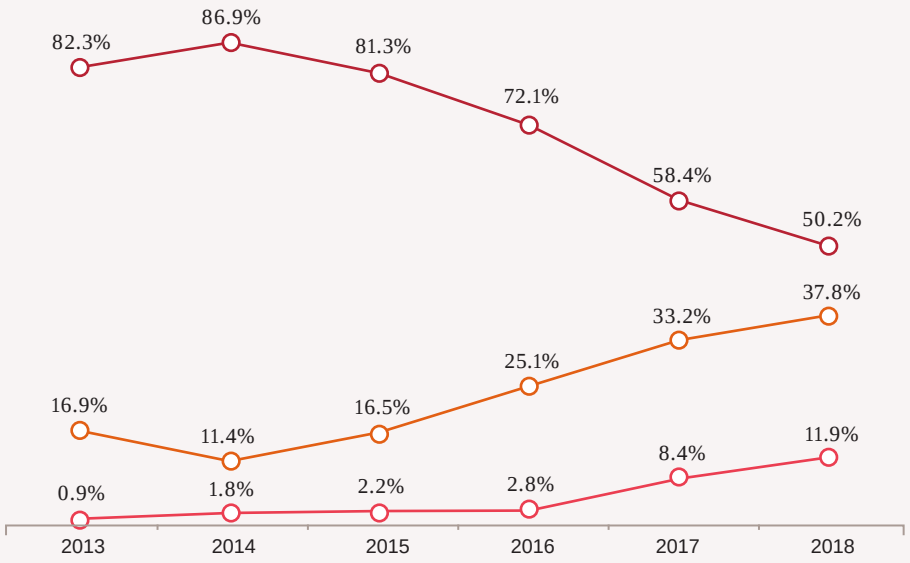
Designed to operate partially independent of any other device but fully operates by connecting with an IP-capable device such as a smartphone, tablet or PC

Smart accessories

Similar to a complex accessory but with the added feature of enabling a user to install third-party software or applications to the smart accessory

Smart wearables

Fully functions autonomously, independent of any other devices, connects to the internet wirelessly and is designed to allow a mainstream user to install third-party software or apps to the device



Source: IDC, *U.S. Wearable Computing Device 2014-2018 Forecasr and Analysis*

Wearables Consistency:

One of the biggest challenges confronting wearable technology today is the consistency of data. Foundationally, a wearable needs to be worn to be used. Primary wearables have a high probability of being with the individual at all times—but for secondary wearables, consistent usage poses a challenge. For instance, a wearables shirt would need to be alternated with other, comparably tech-equipped clothing. Moreover, secondary wearables need to establish an entrenched place in a consumers wardrobe so that the information they provide is contextually accurate—reflecting real time updates and information on a consistent basis, so that the device can grow smarter, more accurate and more effective over time.

For wearables to be effective—across both primary and secondary devices—there needs to be an established frequency of measurement, which today can vary widely based on manufacturer and methods, and streamlined measurement. Most likely, disparate devices will overlap in the items that they are measuring—the information provided needs to be consistent, or at least reconciled through a central hub to avoid confusion and data fatigue.

This will be a challenge—and an opportunity—for enterprise as businesses seek to forge parternships and IT and platform alliances that can deliver a seamless experience on both the front end and back end of wearable technology implementation.

Data Tuning:

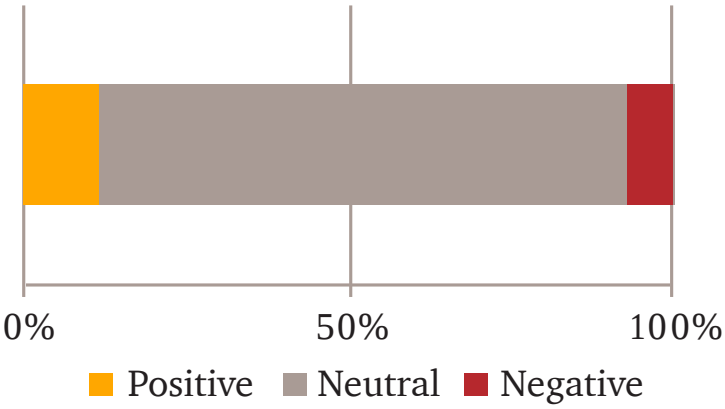
A critical inflection point for the wearable category will be its ability to synchronize with environmental surroundings, reflexively tuning and tailoring to fit a user’s needs. For this to happen, data needs to be created and acted on both locally and remotely. Certain wearables will have local compute capability—among these, the most sophisticated will be hubs run by microprocessors. By contrast, less sophisticated devices and applications requiring less computation will use microcontrollers.

Most notably, wearables cannot be divorced from the Internet of Things – whether local or remote, they must interact with other services and be used in conjunction with the cloud and corresponding big data applications.

What's the allure of wearables?

Even if we don't always know what to do with the information wearable technology gives us, we are still an information-infatuated society—and consumers are hopeful that human-centered design will yield information and insights that improve their lives in critical ways.

Average Sentiment on Social Media:



When consumers assessed the importance of the many benefits of wearable technology, safety emerged at the top of the list. 90% of the general population says that the ability for parents to keep children safe via wearable technology is important—and the range of potential safety applications is considerable. Imagine monitoring your child's whereabouts and vital signs, outfitting them with a headband that inflates when it senses impact, or knowing that they're equipped with a device that can tell them who they can trust and who they can't—a wearable babysitter, of sorts. There are other safety elements, too—like telling us when a natural disaster is coming (and where to go to stay clear of it) or alerting us when we're too impaired to drive.

Perhaps not surprisingly, given the growing marketplace, health topped the importance list, too—more than 80% of consumers listed eating healthier, exercising smarter and accessing more convenient healthcare as important benefits of wearable technology, and Millennials are most enthusiastic about the health benefits that wearable devices can deliver. Sixty-one percent of Millennials agree that wearable technology will help extend the average life expectancy by 10 years, and they are 26% more likely than adults ages 35 and older to agree that wearable tech will help decrease obesity rates.

"I have a father who is 86 years old. In the past year he's been in and out of the hospital, and having his medical records on Dropbox was essential. How fabulous would it be if my father just had a wearable that provided that information? This stuff will become essential when it saves lives and fixes problems."

– Pavia Rosati, Fathom Travel

And then there's the issue of simplicity: Can wearable devices make technology simpler and easier to use? If so, consumers want in—83% of respondents listed simplification and improved ease of technology as a key benefit of wearable technology. While that may seem counterintuitive, consider that only 19% of consumers say they do a good job of living in the moment—and the blame lies largely with our current "wearable" device, the smartphone, which already has us connected 24/7. We are at the whim of technology—but with wearable technology comes the hope of a more seamless integration between technology and our daily lives, one that's less disruptive and more about enhancing the things we do and the experiences we have. What does that look like? With human-centered design as the backbone of wearables, we could be hands free —and spend less time filtering and interpreting data and more time focusing on tasks at hand.

"In the distant future, we'll forget the idea of engaging in technology at all. We'll swallow it, absorb it, and wear it, without us really thinking we're engaging in technology per se."

– Douglas Atkin, AirBnB

Addressing unmet needs: The real opportunity for wearables and brands.

Today's wearable products primarily fill two distinct roles: There are those that feed us information and those that collect information. Your smart watch funnels information to you; your fitness band gathers information from you. But to succeed, the next generation of wearables needs to emerge as a purveyor of both functions—gathering our personal data, analyzing it in comparison with other data sets, and then providing us with custom recommendations that take into account our personal context and situational data. And all of this needs to happen in real time in order to be considered relevant.

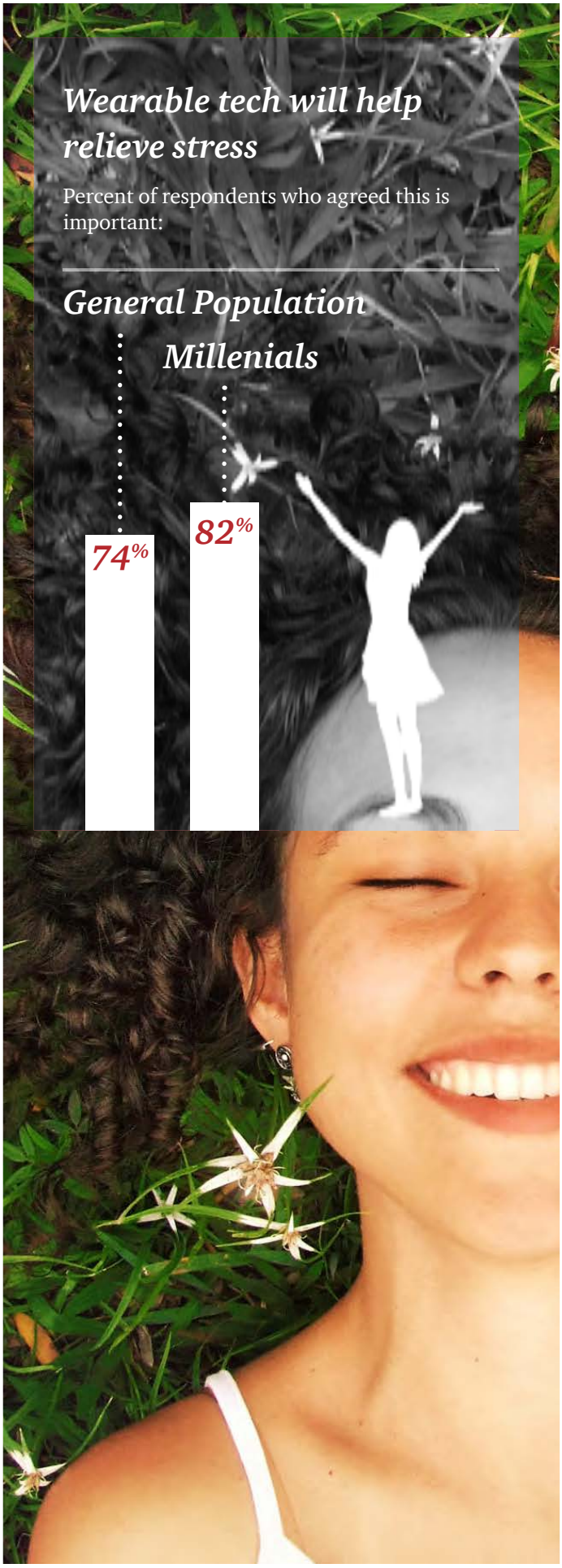
Again and again in our research, we heard consumers asking for devices that make data meaningful, to transform noise into an action plan—and make them accountable for it. In other words: They want wearable devices that not only turn data into insights, but also help them turn insights into decisions and actions. This is the opportunity for wearable tech makers, and for enterprise: If they learn to equip consumers with the right information at the right time, yielding actionable insights that can be integrated into experiences and become part of the solution, they can radically alter—and improve—the landscape of business, entertainment, health and more.

Furthermore, when we asked respondents to rate how important it is for wearable tech to provide certain benefits and how likely they think it is for wearable tech to indeed provide that benefit, considerable gaps emerged. These gaps point to unmet needs that savvy wearable manufacturers—and savvy brands—can and perhaps should find ways to address. The top unmet needs were:

Stress reduction: While technology is often helpful, it is also often stressful. In our research, we heard consumers bemoan two things:

One, the need to keep track of so many devices—the sheer volume of gadgets stacked on a desktop or kitchen table is, for most, an unsettling indication of technological dominance. At some point, consumers told us, it would be nice to have greater centralization of devices—say, one or two principal items, as opposed to the expanding medley that exists today.

Two, consumers want the ability to turn their device off as necessary, or to have it be so seamlessly integrated into their lives that it acts as an essential function—a monitor as omnipresent as a heartbeat. Our research showed addiction fatigue, driven largely by the "uncontrollable" impulses that come in the vicinity of a cell phone. If there's an opt-out or off button, consumers want it. And yet, cell phones do, in fact, have an off switch—we just don't choose to use it. Only 29% of cell phone users turn their phone off at night. Could wearable devices actually intuit our stress levels, and then fill the void of restraint and unplug us accordingly? (Sorry, John, I couldn't return your text—my device told me I was too stressed.) A device that filters messages and information for



us, giving us only what's critical, is a distinct possibility—and for consumers at the whim of information overload urges, not an unwelcome one.

> ***"Invisibility, I'm hoping, is not that I'm just more frantic. It's that I can focus and know why I am making my decisions."***
>
> – Ted Selker, Carnegie Mellon University, Silicon Valley

Driving goal-directed behavior: For consumers, the potential for wearable technology to improve their personal accountability is enormously appealing—particularly for women, of whom 78% say personal accountability is an important benefit of wearable technology, and older Millennials, 82% of whom say this is important.

Certainly the strength of using human-centered design to curate goal directed behavior has emerged within the wellness sector, where fitness bands are facilitating a constant feedback loop—but the potential to influence positive habits to support goal directed behavior is much greater.

Consider Major League Soccer. While most teams in the big five U.S. pro sports leagues (cue football, basketball, hockey, baseball and soccer) have only experimented with wearable technology, Major League Soccer has made it an integral part of its training feedback loop. In 2012, the MLS teamed up with Adidas to offer wearables to every team. Athletes and coaches can slice and dice the data provided by small sensors tucked into players shirts to improve conditioning. Performance declines could signal that players need new workout regimes. As players run intense drills, coaches track elevated heart rates—then look to make sure each player's heart rate lowers to a target rest zone during recovery. The endgame is using this data to improve weaknesses in a player's game—which ultimately can lead to injury prevention and quicker recovery time.

Another example is Capriotti's Sandwich Shop, a Las Vegas-based chain with locations throughout the U.S. Beloved for its submarine sandwiches, the company is predictably busy during the lunch rush. To help solve assembly problems and corresponding backlog, the company turned to Google Glass to record and review rush hour behavior. This technique reportedly has allowed leadership to sit down and go over each rush time and look for opportunities for improvement—providing continuous feedback and improving overall accountability.

Strengthening connections to family & friends: Consumers show a real concern for the distance that technology puts between us. Despite the fact that we are more wired and thus more connected, there's a sense that we are losing out on palpable connectivity. Wearable technology, the thinking goes, can create more multi-sensory ways of interacting with each other that bring empathy and affection to the forefront.

Imagine, for instance, if you could just squeeze your watch to let someone know you're thinking of them, rather than constantly communicating through texts messages. Or a scenario where rather than guessing at people's emotions, we could look up and see contextualized information about them—knowing when they need some sympathy or a helping hand. In essence, wearable technology could expand our bandwidth for human connection, rather than constricting it.

"Technology is annoying today, socially. It gets in the way of our interactions with people."

- Roman Weishäupl, Twyxt

Helping us get more time out of the day: For all its wonder, technology today is hampered by its limitations—we are hemmed in by our devices and the way we need to engage with them. But with wearable technology, we will be better situated to handle tasks and problems as they arise—seamlessly equipped with the tools and information needed to address situations effectively and efficiently.

In its ideal form, wearable technology provides better information that leads to better decisions—meaning we can spend less time deliberating and more time doing. And while multitasking is often dismissed as net unproductive, wearable tech could change that—with hands free and heads up and information delivered in a relevant, timely way, we could be far more productive than we ever thought humanly possible.

"With wearable tech, we'll have more efficient everything: less congestion, no waiting... Problems can be avoided."

– Ted Selker, Carnegie Melon University, Silicon Valley

Improving customer service: Customer service benefits abound—and the consumers we spoke with expressed genuine enthusiasm for them. Imagine if you could walk into a retail shop or a bank and have the sales associate greet you knowing exactly what you're there for. No wasted sales pitch, no wasted time. Or if, the minute you looked at a product, all of the relevant information popped up on your screen—along with coupons tailored just for you. Suppose you have a 3D printer that needs repair: Rather than having a customer tech support agent walk you through the repair steps on the phone, he beams in to assume your line of vision, puppeteering you through the perfect set of steps to make the fix. Trust was another valuable customer service component of wearable tech—knowing details on the service men and women coming into your home, and verifying that they are indeed who they say they are.

72% of adults believe it's important for wearable tech to improve customer service

Among all adults:

76% believe it's important for wearable tech to help us get more out of our time

77% believe it's important for wearable tech to make us more efficient/productive both at home and at work

But in order to enjoy the benefits, we have to navigate the concerns.

While there's much to love about wearable technology, there's also much concern and wariness around information privacy. 82% of our respondents said they felt concerned that wearable technology would invade their privacy, and 86% indicated concern that wearables would make us more vulnerable to security breaches. The paradox is not lost on consumers: The more we outfit ourselves with data-gathering devices, the more exposed we are.

Technology companies certainly aren't oblivious to this—they are quick to declare data anonymous and well-secured—yet it's hard not to imagine that there'll be consequences as data becomes more granular, even if it's aggregated and anonymized, like insurance companies raising premiums or companies ramping up their consumer espionage.

Social isolation and the ability to connect to other humans also rose to the top of the list of concerns for consumers. In a world where we are already tethered to our existing "wearable"—i.e. the smartphone—the notion of having even more constant access (and with it, distraction) is unnerving for the majority of consumers.

Drawbacks: Percent of consumers who say wearable tech will...

...make us vulnerable to security breaches	86%
...invade my privacy	82%
...hurt our ability to relate other humans	72%
...make me too dependent on technology	68%
...lead us all to own and use too many devices	65%
...take away my autonomy at work	54%
...turn us into robots	52%
...make my job unnecessary/redundant	47%
...make everyone look ridiculous	37%

Aesthetics matter, for now.

"We're still putting lipstick on a pig,"

– Jay Parkinson, founder of Sherpaa Health, Inc.

Much fuss has been made about the aesthetic stumbles of wearable technology makers—most notably, around smart glasses. To date, wearables aren't particularly pretty or discreet, leading retail designers like Tory Burch to unveil fashionable wearable accessories via her "Tory Burch for Fitbit" line, in which a bracelet or pendant costs $175 and up. This, in the words of Jay Parkinson, our New York City panelist and founder of Hello Health and Sherpaa Health, is simply "putting lipstick on a pig."

And yet for all the cynicism around the still-clumsy aesthetic of wearables, most people don't seem to care. Only 37% of our respondents expressed any concern that wearables will look ridiculous—for most, there's a pervasive sense that, with time and development, these devices will become more discreet and more normalized as more of us wear them.

Recent business decisions point toward forthcoming aesthetic improvements, particularly among luxury providers: Apple recently appointed the former Burberry CEO, Angela Ahrendts, as head of retail strategy and operation; Barneys, Intel and the Council of Fashion Designers of America are reportedly collaborating on a wearable bracelet; and at this year's US Open, Ralph Lauren launched a wearable, intelligent fabric which streams real-time biometric data, from heart rate to calories burned, to a smartphone or tablet. "We want to control the technology and make it applicable to our life in a way that is refined and comfortable," David Lauren, executive vice president of marketing and advertising, told the New York Times.

Do as I say, not as I do... conflicting opinions on information access.

Our data also turned up an interesting revelation when it comes to willingness to share data with family, friends and employers—for all the wariness of putting data in the hands of government and companies, consumers are even more leery when that data gets closer to home, in reach of friends and family. Notably, there was nothing that most people were comfortable giving their friends and family access to. People were most uncomfortable with others knowing their workplace productivity. People were most comfortable with others knowing what music they listen to—but even then, 65% still would rather keep that information guarded.

And yet: There's a curiosity to know what others are up to via wearable devices. Pointedly, there was notable interest

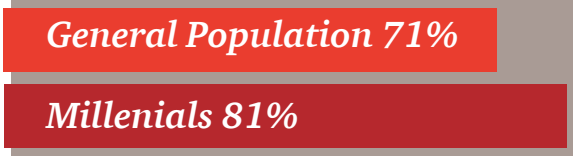
in keeping track of loved ones. 73% of survey respondents said they'd be interested in monitoring their children—and, yes, 42% would be interested in a wearable that allows them to monitor the behavior and whereabouts of their spouse.

"The truth will be present in everything. You'll know everything about yourself and your loved ones if you opt in."

– Jeff Malmad, Mindshare

"Personal accountability is an important benefit of wearable tech."

Percent of respondents who agreed:



And then there's the bigger picture. In our open-end responses, many commented that they are concerned about wearable technology opening the doors for too much government intrusion in our lives, or putting too much personal data into the hands of corporations. Yet for all the concerns, just as with the individual applications, we heard many positive societal level benefits that wearable technology could bring.

Consider the shooting on August 9, 2014 of an unarmed teenager in Ferguson, MO, which raised questions of whether police should be equipped with cameras to maintain clear visibility into their actions and increase accountability. Reactions to this approach are certainly mixed, but nonetheless we begin to paint a bigger picture around the societal implications of wearable tech. When we look beyond individual tracking, which often raises "creep factor" concerns about tracking our personal information too closely, we can see potential for macro level societal change. Aggregated location tracking could lead to better urban planning, health sensors could lead to preventative care and lower health care costs, and so on.

Wearables could be the new nanny state—whether that's a good thing or bad thing and whether the societal benefits outweigh any personal consequences depends on your perspective. This is the tipping point of the wearable future.

"There is a new set of rules. The rules have been created by reputation. It's a reputational trust economy."

-- Douglas Atkin, AirBnB

Social Benefits

Everyone is Watching

Privacy and security concerns are realized and companies/government essentially track our every move.

Crowd-Based Social Change

City planners, doctors and others use data from wearable to do everything from helping lower obesity rates to making traffic flow better.

Net Negative Impact ***Net Positive Impact***

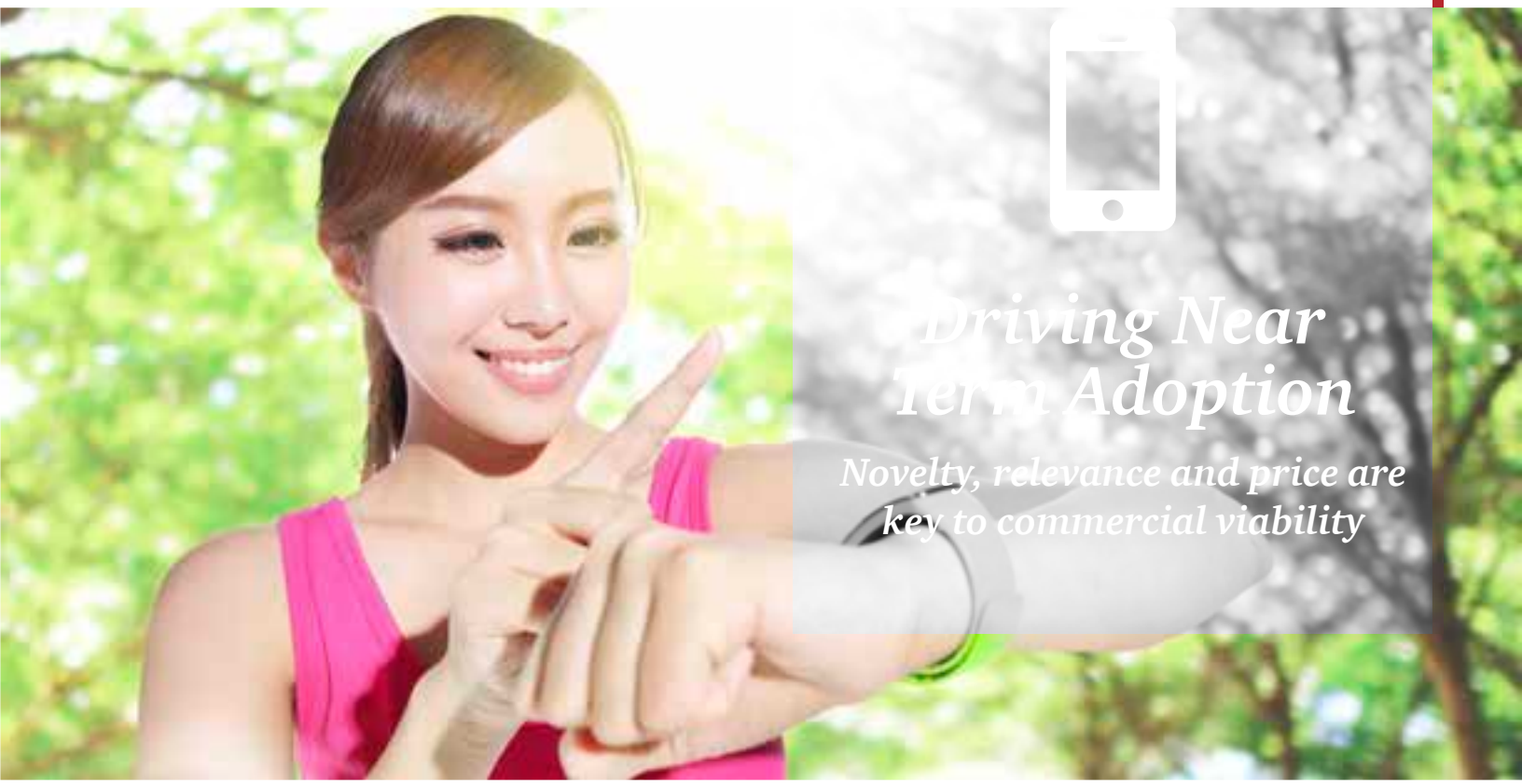
Inescapable Daily Annoyances

Privacy and security concerns are realized, but it is mainly used to give us recommendations, place advertising or sell us something.

Mass Self-Improvement

Practical wearables are invented to help us with bad habits or adopting new behavior. We use our own personal data for all kinds of self improvement.

Personal Benefits



Driving Near Term Adoption

Novelty, relevance and price are key to commercial viability

While there are considerable concerns over the application and protection of data, the rise of wearable technology is stymied by a much more basic barrier: commercial viability. Despite all the hype, many of the devices hitting the marketplace will not survive in the staggeringly competitive consumer electronics industry.

First, a product will not take off among mainstream consumers until it adds benefits that are not yet met by smartphones and other devices. Novelty and relevance are two pillars key to this sector—both must exist. Related to that, but no less pertinent to manufacturers: Price matters.

Yes, in the long run, this will be a function of market supply and demand. Consider Google Glass, which opened its preliminary launch at $1,500 per pair. But in the short term, for now, price will significantly impact demand.

In our research, more than 85% of respondents said they'd be unwilling to buy a smart watch, fitness band or smart glasses at a price point of $300 or more.

Even at a lower price of $100, demand was still tempered—42% of consumers said they'd be willing to buy a smart watch, 38% said they'd be willing to buy a fitness band and 27% said they'd be willing to buy smart glasses.

Considering that as of August 2014, market price for fitness bands averaged $120 and smart watches retailed for $180 on average, these stickers will need to be slashed considerably in order to move product in the years to come.

And yet, there's a viable short-term opportunity for wearable makers as they seek to reconcile development costs with market price: Employers are poised to play a huge role in driving wearable adoption.

In our survey, 70% of respondents said that, in the future, they expect their workplace to permit the use of wearable technology. Moreover, roughly one out of two respondents agreed with the statement that "In the future, my company should fund the purchase of wearable tech" —nearly 60% of whom said employers should fund the technology because it would make them more efficient at work.

Notably, consumer willingness to adopt wearable technology is much higher when their employer pays for it, versus paying out of pocket.

Employers, take note of wearables.

Already, companies are putting wearables to work. Football teams, for instance, are equipping players' undershirts with devices that monitor exactly how fast they're moving and how hard they're exerting themselves. In warehouses, crews are being supplied with glasses that warn them if they're about to fill an order incorrectly or crash their forklift. In offices, workers are getting smart badges that tell them how engaged or stressed they are during meetings.

It's easy to see how this could quickly seem invasive and annoying to workers—and yet our data shows that people are remarkably unconcerned about the net impact wearable

technology could have on their job: 70% of all respondents disagreed with the statement "Wearable technology will make my job redundant," and 60% disagreed with the statement "Wearable technology will take away my autonomy at work."

In a country where workplace loyalties are fragile—just 22% of American adults say they feel loyalty to their company and only 28% say they feel their company culture is caring and understanding—wearable technology could actually increase morale if it makes it easier for workers to produce more efficiently and provide better service, making them stronger employees overall. A recent "State of Workplace Productivity Report" by Cornerstone OnDemand showed that 58% of employees would be willing to adopt wearable technology if it would enable them to do their jobs better—with receptivity among Milllennial employees even higher at 66%.[1]

Consider the Container Store, the storage solutions retailer with a nationwide footprint. The company is known for having an employee-focused culture, routinely earning it a spot on Fortune's 100 Best Companies to Work For list. To improve communication and development, The Container Store recently equipped its employees with the Theatro Wearable Computer—a small plastic box-shaped device that affixes to an employee's shirt. Much like a walkie-talkie, it's intended for employees to communicate with each other throughout the store. It has both broadcast and one-to-one communication capabilities—reportedly leading to a 20% increase in overall communication but a 60% decrease in the number of superfluous communications that individual employees received. In essence, the Theatro is helping to reduce noise so that employees don't have to filter through it themselves and tune out what isn't pertinent to them, leading to better response times and improved overall productivity.

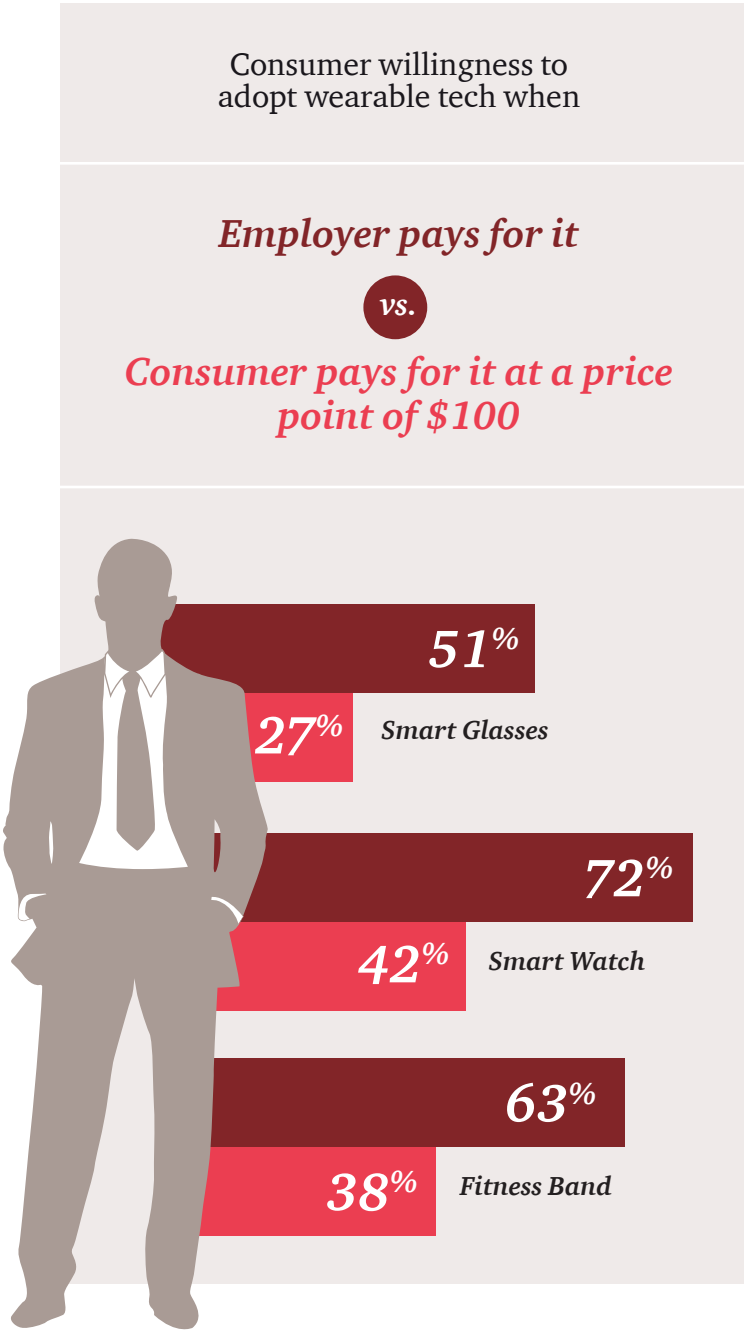
Another example is Abseilon, an Arizona-based company that provides rope-access solutions. Abseilon technicians often construct rope systems to access otherwise inaccessible areas. To document the work, the company gives a Vidcie wearable camera to technicians, who can then stream video to stakeholders to provide a birds-eye view of the situation. The cameras allow technicians to receive guidance in a specific situation, functioning as a helpful set of eyes on the project.

And then there is Hitachi, the Japanese company that has issued a proprietary wearable device, known as the Hitachi Business Microscope—a gadget about the size of a company ID badge that workers wear on a lanyard around their neck.

Packed with sensors, the device monitors how workers move and speak, plus environmental factors like light and temperature. That means it can track where workers are and recognize who they talk to via signals sent to other people's badges. It can also record how often they make hand gestures, how frequently they nod, and the energy level in their voice. With this feedback, workers can see how their communication habits and energy levels change based on who they're meeting and where the interaction takes place. An LCD screen shows real-time stats for personal feedback and benchmarking—and suggests strategies to improve collaboration.

This type of device, sponsored by companies, will most likely only be successful if careful guidelines are in place around privacy—ensuring that employers only see anonymous data, that participation in the devices is optional and that there are no punitive implications.

So while obvious pitfalls exist, there are many potential gains in productivity and stimulation that can emerge from wearable tech application. If used correctly, these gadgets will mean fewer accidents, fewer returns to deal with and more chances for workers to solve problems themselves.



[1]"The State of Workplace Productivity", Cornerstone's OnDemand', www.cornerstoneondemand.com/resources/research/state-of-workplace-productivity-2013.

A Snapshot of Millennials

Defined as adults ages 18 to 34

Compared with adults ages 35+, Millenials are...

55% *more likely to own wearable tech*

67% *more likely to find new tech exciting and use it as much as they can*

2X

Millennials are 2X more likely to agree that it's very important for wearable tech to make media and entertainment more engaging—roughly 3 in 4 Millennials say this is important.

Millennials would most want wearable technology to tell them about:

- *Their Exercise 81%*
- *Their Dietary & Medical Info 71%*
- *Retail Deals 51%*

They are most motivated to adopt wearable technology based on:

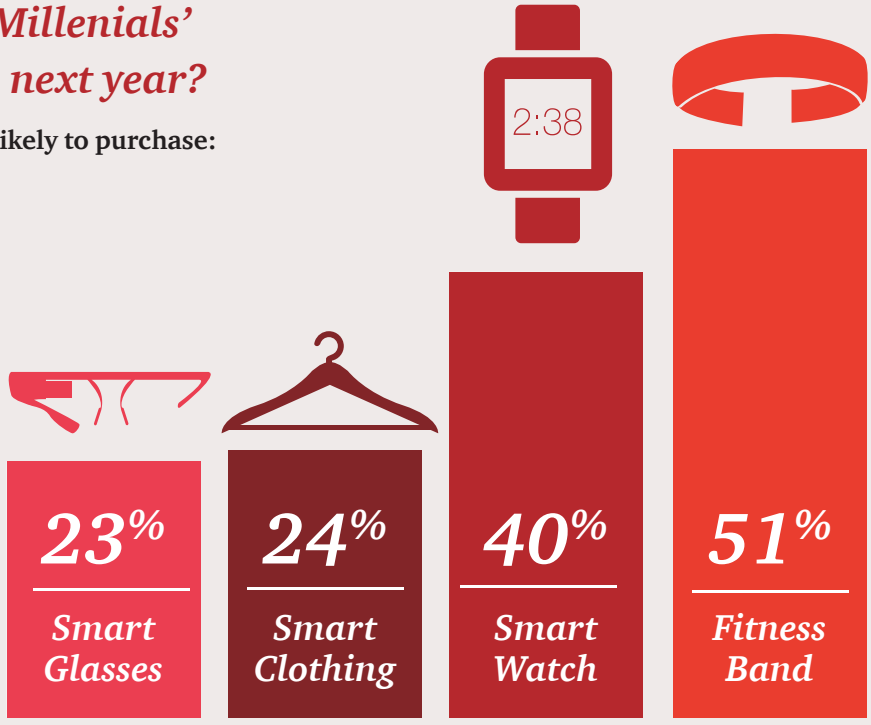
01. *Price*
02. *Integration with other devices*
03. *Ability to track personal information*
04. *Ability to improve personal time productivity*

Millennials are far more willing to adopt wearable technology if someone else pays for it:

Millennials are 2x more likely to be very willing to adopt a smart watch, fitness band or smart glasses if a retail, entertainment and media or health insurance company pays for their device.

What's up with Millenials' purchases in the next year?

Percentage of Millenials likely to purchase:



A Snapshot of Parents

Defined as adults with at least one child in the household

Compared with adults without children, parents are:

- *More likely to own wearable tech*
- *2X more likely to agree strongly that wearable tech will strengthen our connections to family and friends*
- *2X more likely to say that wearable tech will make us interact with others more frequently*

When it comes to the importance of wearable benefits, parents are more likely to say it's important for wearable tech to:

- *help us get more time out of the day*
- *help us get the best shopping deals*
- *help parents keep their children safe*
- *help make us more efficient/productive at home*

Perhaps not surprisingly, parents are more likely to want information about others via wearable tech. The things they most want to know about others are:

01. *Location tracking*
02. *Health information*
03. *Mood/happiness levels*

When it comes to purchase consideration, the biggest factors for parents are:

01. *Affordability*
02. *Seamless integration with other devices*
03. *Ability to improve personal time productivity*

What's Next for Wearables and Enterprise

IX.

Will wearable tech be the next big thing for enterprise? Most likely. And that next big thing already has its foot in the door—meaning business needs to act smartly and have a game plan in place, ready to act when competitive opportunity arises. Here are some considerations for executives to keep in mind.

Assess the Impact of Wearable Tech on Productivity And Health Against Your Bottom Line.

As our research shows, big players in the wearable tech industry are already designing products with business applications in mind. Key benefits include improved workplace productivity, improved health and greater overall organizational efficiency.

The field service industry has already felt the impact of wearable technology, with technicians donning wearable cameras to free up hands and provide better perspective and readily available advice in the field. While everyday consumers are still skeptical of smart glasses, savvy enterprises recognize these devices as a means to solve issues expediently, and save millions in costs along the way.

Also important to bottom line performance is the impact of health monitoring devices on health care costs. Companies that implement wearable fitness devices and incent based upon results reportedly show a healthier workforce and a corresponding decrease in health care costs.

In the retail world, wireless headsets, wearable wrist displays and digital lanyards enable workers to access information on-the-go, so they can look up the information they need without leaving the customer's side—an efficiency that can markedly increase retail productivity. Smart watches are also increasing retailers' productivity with payment processing—one notable application is Apple's move into mobile payments, which looks poised to add substantial legitimacy to a budding industry. Apple Pay will let users make purchases simply by waving their Apple Watch in front of a reader—with the endgame of a much faster checkout process.

Envision How Wearables Can Create New Business Opportunities.

In addition to improving efficiency and productivity, wearable technology is also opening the doors to new business opportunities. With wearable devices, we can be connected at all times—driving a constant flow of real-time data that, when smartly analyzed for insights, is an opportunity for enterprises to create new and smarter technologies and services.

The rise of wearable devices like the Apple Watch and Google Glass will create new avenues for marketing, including smarter, more robust customer data collection—and stronger insights into user interaction. Digital marketers will be able to more easily gather and analyze information on the buying habits and locations of consumers. New payment platforms like Apple Pay also stand to dramatically change the efficacy of targeted advertising.

New wearable gadgets mean enterprises will need to embolden their IT departments. Aggressive enterprises may task them with developing apps for new systems or entirely new products, but even conservative enterprises will need an IT team to be prepared to integrate emerging technological devices into the company system and adapt accordingly.

Regardless of when you take action, your company needs to prepare to embrace wearable tech.

Wearable technology has only just begun its impact on enterprise. Those hoping to remain competitive in the future need to account for the next wave of wearable technologies, infusing them into their strategies for both employees and consumers. Here are a few steps to consider in preparation:

Improve the situation for your employees and consumers.

Our data shows that workers are highly receptive to using wearable technology in the workplace, but like any other tool people use in the workplace, for wearable devices to succeed they must make employees' jobs easier, be simple to operate and make them more productive. Simplicity is an important litmus test that the device must pass before you consider implementing it among your workforce. That same litmus test must prevail for consumers.

Develop positive feedback loops.

Wearable tech is poised to be hugely beneficial for workers seeking business coaching. Real-time feedback can be used to shift behavior, with devices measuring and evaluating progress toward stated behavior goals. Privacy, of course, is a key issue here. Employers will need to be mindful of which data gets shared solely with the individual and which also gets shared with their supervisor. For a company to monitor its staff using wearable tech, management needs to present clear and compelling value—and enable workers to weigh in on the decision-making, keeping conversations constructive and positioned around opportunities for growth. For consumers, human-centered design needs to create a seamless wearable experience that provides consumers will real-time feedback that they can act on—not just data, but data-driven insights.

Instill trust.

Privacy concerns are inescapable when it comes to the issue of wearable tech. Enterprises will need to be consistently transparent with what they do with data and how they use it. Trust must be at the foundation of the wearable relationship, from implementation to action. "How far is too far?" is a question enterprise can never stop asking or respecting.

Keep human-centered design at the forefront of your strategy.

To effectively embrace wearable technology, enterprises must put the user at the center of everything they do. This practice is known as "human-centered design," one that reshapes an entire enterprise and its capabilities system around the customer or user experience.

Attitudinally, a human-centered design approach necessitates many of the same attributes as a startup—that means prioritizing creativity, speed, flexibility and a willingness to take risks in exchange for greater rewards. For wearable tech, this means leveraging devices not only to collect data, but also to synthesize, analyze and draw meaningful insights from that data in ways that reflect true consumer needs.

Recognize that the wearable category will continue to evolve.

As with any digital strategy, adopting wearable technology requires taking the long view. Wearable devices will continue to be refined and optimized. Companies must take actions now that prepare for the disruptive opportunities and evolving platforms that will inevitably be forthcoming. By examining trends in wearable technology—and the Internet of Things at large—against the backdrop of consumer expectations and industry shifts, executives should work to develop hypotheses about user expectations, technology breakthroughs and industry adoption. These hypotheses are less about prescience than they are about establishing a vision for the application of wearable technology in your business—from which you can then outline a roadmap to adoption and implementation. ■

How PwC and Strategy& Can Help

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