Health and Fitness Wearables: Affecting Healthy Behaviors, Moving Beyond Fashion

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As major technology companies seek growth in platforms outside of mobile devices, the wearable electronics market is expected to grow significantly over the next few years. The market could be valued at $1.5 billion by 2014, up from $800 million this year, according to a recent report by Juniper Research. By 2017, an estimated 80 percent of wearable devices will be represented by fitness and medical tracking devices such as the Jawbone UP, Nike FuelBand and the Fitbit device ecosystem. As evidenced by the proliferation of wearable computing devices presented at the recent Consumer Electronics Show, the category will undoubtably become crowded with products by the end of the year, as both large and small companies flood the market with devices and services.

With American consumers continuing to pursue healthy lifestyles, wearable fitness devices and their associated services are likely to become an essential and compelling facet of the consumer electronics market. This document reviews the category, its primary players and current user experience challenges.

What is a fitness wearable?

A health or fitness wearable is usually comprised of two main components (in this document we will refer to them as a “system”). The first is a small hardware component such a bracelet (Jawbone UP, Nike FuelBand) or a pedometer-like puck (Fitbit One, Fitbit Air). Second, and most important, is the accompanying software and services that receive, process and analyze the data collected by the hardware device. These software components are usually offered through a mobile app or affiliated website.
These components can be extended by additional pieces of hardware to comprise a device ecosystem, including connected scales or blood pressure monitors, as in the Fitbit product offering. The hardware itself can contain sensors like accelerometers or GPS chips to track movement, as well as components like gyroscopes that can vibrate in order to wake the wearer, or remind them to move after periods of inactivity. Additionally, the devices require a mechanism for transferring collected data to an application, typically via Bluetooth or a dongle.

The software and services are really what make fitness wearable systems useful. Without software that can interpret the user’s health-related data and translate them into specific health goals, the devices have limited utility. The relationship between the health device’s hardware and software must be carefully designed so that wearers are not burdened with time-consuming tasks like entering and managing the collection of their own data. For example, current users of all devices are often tasked with providing the software with additional information their devices cannot passively capture, like food intake or activities that cannot be interpreted by the hardware (such as weightlifting or cycling).

Additionally, users need to see and understand the context of their activity so they can alter their behavior accordingly. At the moment, all products on the market do a fairly good job of collecting and displaying health data. However, as category’s supporting software applications are still in their infancy, value-added analysis of the data and personalized recommendations are still under-developed. This results in a user experience where individuals are largely left to take health actions based on their own interpretation of their data.

**Aesthetics and Fashion**

Despite an often lackluster software experience, most players have overcome aesthetic barriers to adoption by consumers. Both Nike and Jawbone have created bracelets that are fairly discrete and fashionable. To date these devices have largely appealed to early adopter consumers, those attracted to the latest, most trendy products – many of them who are simply interested in understanding “the quantified self.” That is, they have a
desire to accumulate and share data about their personal activities and daily minutiae. The appeal of data for its own sake in this consumer segment does not create demand for particularly insightful outputs, as graphs, charts and summaries provide satisfactory value.

Devices like the Fitbit have taken another aesthetic tack. They have focused making their product small and practically invisible. Fitbit’s hardware takes the form of a tiny pedometer than can be placed in pocket or clipped to clothing. However, Fitbit’s introduction of a sleek wristwatch-like device follows the style-conscious approach of Jawbone and Nike. The forthcoming introduction of larger players in the wearables category, such as Google Glass and smartwatches from both Samsung and Apple, will undoubtedly place even more emphasis on aesthetics and integration into the consumer’s fashion sense.

The focus on aesthetics and fashion by wearable health device companies is telling. Hardware and fashion are the legacy of companies like Jawbone and Nike. Software and services are not. And therein lies the challenge. It is relatively easy to stoke consumer appeal through novelty and aesthetics. It’s much more difficult to communicate and motivate healthy behaviors in a way that authentically connects with users’ needs and behaviors. To stoke continued growth in the health and fitness wearables category – beyond early adopters – companies will need to demonstrate real health benefits and outcomes in order to appeal to mainstream Americans.

A 2013 report by Forrester all but condemns the fitness wearable category as relegated to organic-produce-consuming health obsessives. It explains that most Americans believe in simple self-moderation when it comes to health habits, not external impetus. The same report asserts consumers cannot be expected to positively respond to health tracking products, perhaps unless they are given financial incentives or are already facing a chronic illness. It is our belief that the conclusions of the Forrester study place too much emphasis on American’s status quo bias – a common behavioral phenomenon where familiar and established behaviors are deemed easier and more preferable. It suggests that most Americans fail to see the value in wearable computing’s ability to positively influence their own health. Since Marketdata, a firm tracking U.S. weight loss and diet spending since 1989, finds Americans are now spending over $60 billion a year, it appears that the population is doing a lot more than just contentedly setting into the status quo, from a spending perspective at least.

The primary focus on aesthetics and fashion by wearable health device companies is telling: It’s difficult to create motivational software that authentically connects with users.
The Problem with Motivation

What the findings of the Forrester report fail to fully mention are the shortcomings of the fitness wearable category’s design, namely the poorly implemented mechanics of persuasion and motivation.

Aside from the general usability problems that plague any new product category (in this case, the need for more passive, less time consuming data collection), the biggest pain points in the wearable health device category at the moment are related to product personalization – especially the act of persuading and motivating the user.

Nearly all products emphasize and anchor users’ health with a few broad signifiers of health. Nike and Jawbone focus on supplying users with basic information about their activities, such as number of steps, hours slept or calorie expenditures. Nike has abstracted some of its sensor data by providing users with a proprietary “Fuel number” which represents a measure of overall activity in relation to biology-based “oxygen kinetics.” This number is meant to motivate users toward a general daily goal. However, many mainstream users report that the meaning of this number is opaque and confusing. These consumer perceptions underscore the need (and opportunity) for Nike to present more authentic and personally meaningful data to users.

Jawbone provides simple metrics to track toward, such as number of steps or hours of sleep. In addition, users receive messages within the mobile application that provide more context about their activity and the activities of all Jawbone users. For example, users receive notice when their activities is placing them in a higher performing percentile. The software also provides basic health facts or tips. Again, the application does a great job of providing users with personal statistics, but aside from urging users to take ever more steps, specific recommendations are largely absent.

These products certainly appeal to users who seek to understand the quantified self and place their health status in a bit of context. However, the burden of understanding and advantageously using the data is left to the user. It’s true that knowledge can empower. But these devices are not yet providing deep knowledge, rather just statistical observations. For information to be truly valuable, it must be actionable and actionable.

1 Considering their abstract representation of energy, is arguable whether or not calories are a meaningful health metric. A recent study by the University of North Carolina found that number of minutes of physical activity required to burn of an item of food led to healthier eating choices than calorie counts alone.
emotionally resonant. And this is where most products in this category are struggling. Providing clear guidance and emotionally resonant advice is king. They are value-added services for which consumers are willing to pay substantially. Consider, for example, how much consumers spend on personalized guidance from financial advisors, lawyers, career coaches or personal trainers. Wearable fitness systems have the opportunity to provide such advice at a fraction of the cost.

So how can these products be designed to promote users’ health more effectively? Manufacturers can begin by addressing the principles of behavior and motivation more carefully.

**Extrinsic motivation** is cursory addressed in existing products. The Nike FuelBand’s LED display easily alerts users to their goal fulfillment throughout the day. The Jawbone UP goes further, using a vibrating reminder whenever wearers have remained motionless for too long. Nearly every device on the market connects users with a larger external community, so individuals can compare and crowdsourcing their motivation, perhaps motivated by peer pressure.

Interestingly, Forrester’s report suggests that an external motivator of financial reward may be more appealing to consumers than a fitness wearable. However, numerous studies have shown that when an individual has come to expect an extrinsic reward, they engage less in the task once the reward is removed, a phenomenon known as the overjustification effect. Overjustification can be avoided by properly giving praise and compliments perceived as authentic and sincere by the recipient. However, the rewards associated with achieving these goals by fitness wearable applications rarely add up to more than animations or simple encouragements – hardly enough for most users to alter behaviors engrained by life-long behavioral patterns. It is easy to feed and please a tamagotchi or Furby with a few clicks of a button. It requires more effort to lose 20 pounds.

Perhaps the biggest opportunity for fitness applications to address extrinsic motivation is through more personally relevant depictions of progress toward goals. Studies at Stanford University have shown that individuals are likely to save more for retirement when shown computer manipulated images of their retirement-aged faces, suggesting that observing more concrete visual representations rather than abstracted data provoked greater empathy for participants’ future selves. Similarly, providing users the ability to see how their health behaviors will affect their physical appearance (both negatively and positively) by revealing their effect on their own body composition may be a way of externally motivating individuals in an emotionally meaningful way.
Considering that many health tracking applications encourage users to periodically track their body measurements, there is opportunity for the development of software that can extrapolate how one’s bodily dimensions will change over time, depending on the progression of healthy (or unhealthy) behaviors. Allowing users to model and project their future appearance may be yet another way to motivate individuals with more concrete and relatable information.

Intrinsic motivation is addressed to a lesser extent by fitness wearable systems. This type of motivation typically stems from an individual’s inherent enjoyment of an activity. It is associated with a sense of autonomy and belief in one’s own capability to achieve a goal. With most fitness wearable systems, users can define their own goals (such as steps-per-day, calorie budgets or sleep targets). Once defined, they can track their daily progress and compare the performance over time. Here the challenge is for fitness software to identify and encourage the behaviors that are both enjoyable to the user and maximally beneficial to their health. This requires a deeper understanding of a user’s context, including their available unstructured time, disabilities, emotional states, confidence in their abilities, energy levels and a host of other factors that can determine a person’s sense of autonomy.

Factors that promote this approach to intrinsic motivation include shaping, sequencing and story. For a user to make progress toward health, they must know where they are along their journey, how to tackle their health goals in “chunkable” sequences of activities, and how to shape and reinforce their good behaviors with increasing effectiveness. This requires the product experience to offer appropriate, personalized challenges. (Increasingly difficult challenges and health targets should follow improvements in health.) It also requires the product to make more inferences and help users find and interpret positive patterns in their behaviors.

For example, if a tracking system recognizes that an individual frequently has a flexible, 30-minute period of free time on weekday evenings (perhaps after putting children to bed), and an overage in caloric intake for the day, it could prompt the individual to spend a few moments engaging in moderate activity (like stair-climbing or bodyweight squats). Again, key to developing intrinsic motivation is setting an individual up for success by providing a sense of autonomy, encouragement and control over their own progress. Through this approach, individuals are not subject to strict regimens and goals, but clear guidance in how to use moderate behaviors to maximal effect.
Modeling software by DAZ Studio allows users to manipulate and visualize specific body dimensions. Applying this practice to fitness tracking software would create more concrete interpretations of health information.

Stoking motivation is not easy to do. Striking a balance between persuasive techniques and motivational rewards requires nuance and careful study. Consider recent lessons from the energy sector regarding the behavioral phenomenon of social norming, where individuals compare and alter their behavior to match that of their peers. When utility partner Opower wanted to encourage energy consumption by showing consumers their consumption patterns in relation to their neighbors, their plan initially met with negative behaviors. Consumers who conserved the most energy actually began to use more energy when they realized how well they were performing within their community. In essence, they felt they were being energy-conserving overachievers and passively began to normalize their usage to resemble their less moderate peers. Fortunately, there was a fix. Opower introduced a reward: A smiley face appeared on overachievers’ bills. Their wasteful behaviors ceased. The phenomenon of social norming clearly applies to wearable health tracking devices: If users are not properly rewarded for outperforming their peers, they may normalize and adopt the less healthy practices of their peers.

Ultimately, for the fitness wearable market to be successful, products will need to provide users with more meaningful and actionable health information. Software and services components will need to be more empathetic to the real challenges and needs to

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2 In this case, a smiley face reward justified the effort of conserving energy. A similar reward for permanently altering engrained health behaviors is likely to be insufficient.
mainstream users, providing them with clear guidance and personally relevant forms of motivation and reward.

**Near Future Directions for Fitness and Health Wearables**

Regardless of whether or not fitness tracking systems can connect more meaningfully with consumers, the market will be closely watched by medical providers and health insurance partnerships in the coming years. Already, health insurance provider Aetna has teamed up with Best Buy to provide subscribers with incentives to buy wearable fitness trackers directly from the retailer through specially designed “health technology” departments in its stores.

This approach suggests businesses want employees to take matters into their own hands, rather than pushing down pedometers through expensive corporate health initiatives. This is all the more reason for fitness wearable platforms to build more successful and relevant systems for consumers. In the end, an empowered, autonomous individual is much more likely to succeed than one hemmed in by top-down policy and inflexible programming. But will fitness tracking systems companies use an approach that embraces consumer empathy and meaningful mechanisms of encouragement, or simply focus on fashion, consumer-agnostic health-oriented platitudes and B2B enterprise partnerships? With a $1.5 billion market on the horizon, careful product planning should be in order.

**Questions for Consideration**

*How can wearable companies position their products to appeal to the mainstream consumer, instead of just early adopters and fitness fanatics?*

*What are truly relevant and authentic methods of persuasion and motivation that wearable companies can employ in their software to appropriately connect with users?*

*What are an individual’s true motivations, challenges, emotional needs and heuristic models regarding the quest for a healthier lifestyle – and how can these be addressed with a fitness wearable system?*

*How can wearable companies work with larger institutions and consumer channels to encourage healthy behaviors through long-term, emotionally engaging solutions?*

**Contact us to start answering these questions and learn more.**

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Reece Dano is a design researcher and creative director who has developed market and product strategies, investigated user behaviors and analyzed trends for a broad range of industries and applications. He aligns rigorous research and structured design processes to develop distinctive business strategies and products. His user-centered approach constantly strives to promote understanding and empathy.

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References


