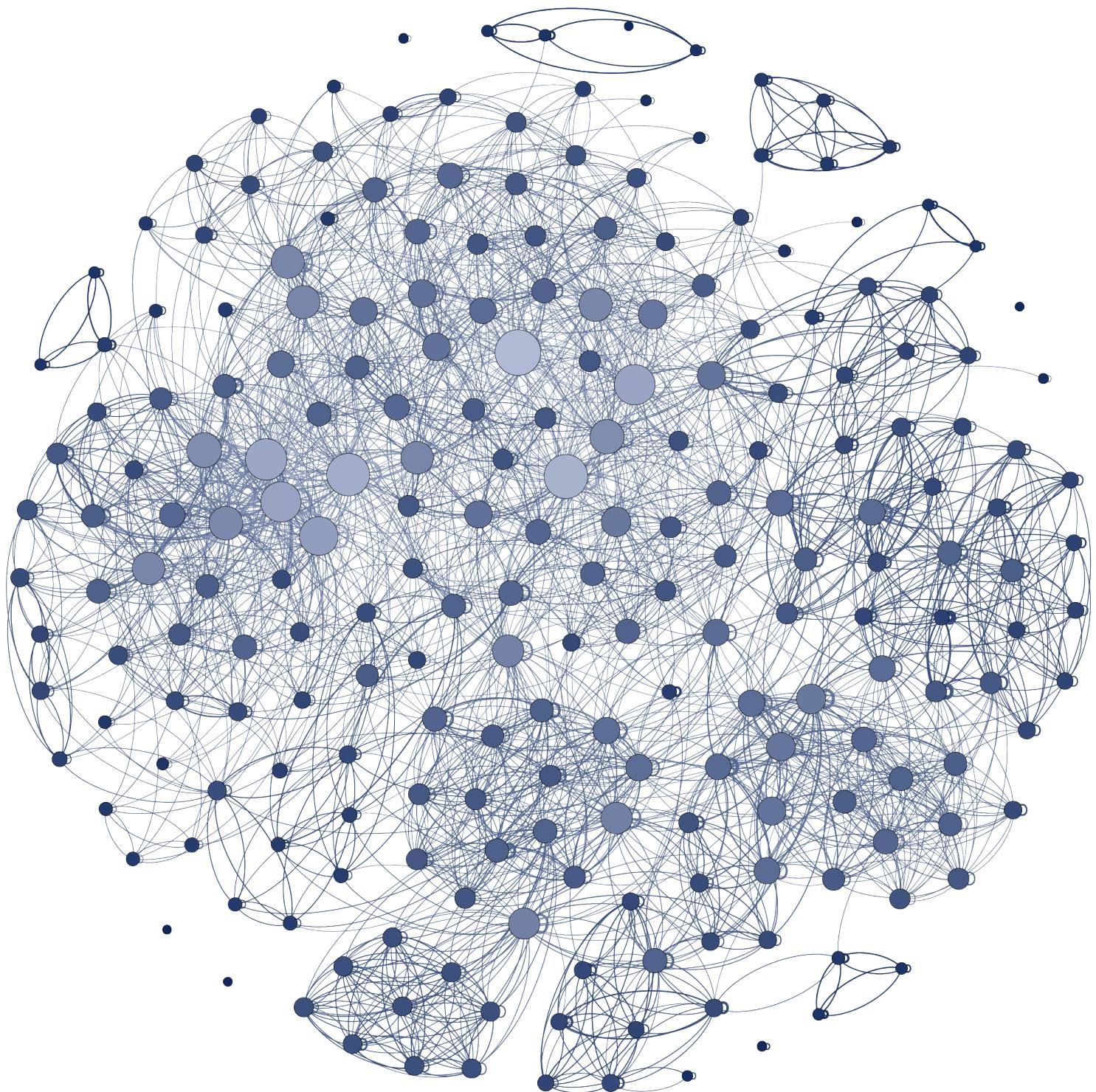

Vandrico
Inc

**WEARABLES
MARKET INSIGHTS**

2nd Quarter, 2014

Vandrico Solutions Inc.

Vandrico Inc



This image is a visual representation of Vandrico's Wearable Device Database.
Each node is a wearable device and the connections represent similarities.

THE WEARABLES MARKET IS EXPANDING IN ALL DIRECTIONS

WEARABLES MARKET INSIGHTS: Q2.14

INTRODUCTION

Last quarter, we wrote about the explosive growth of wearable devices that had been witnessed over the previous 12 months and how the next short-term shift would be enterprise wearables. Mainstream news, blogs, and research organizations have moved on from questioning the viability of wearable devices for consumers to now assessing the benefits in the workplace. As the mainstream media continues to strengthen discussions on enterprise wearables, we are happy to begin sharing our years of experience in using wearable devices in the workplace.

This quarter's report is written for companies and investors interested in the wearable technology sector and should be read in conjunction with the first quarter report. The purpose of this report is to provide a high-level understanding of the sector and give readers a snapshot of some fundamentals. The team at Vandrico has compiled the most comprehensive database of wearable devices available on the Internet, from which it has drawn most of the information for this report.

DATA COLLECTION METHODOLOGY

The wearable technology database available to the public was compiled by the efforts of the entire Vandrico team. Data was collected using the following methods:

- File Patents
- FCC Filings
- Manufacturer Website
- Direct Contact with Manufacturer for Data Verification

Devices that are included in the database must meet all of the following criteria:

1. The device must be worn, not carried. Devices that clip on to clothing are acceptable.
2. The device must compute with user inputs and control. This can be passively controlled, defined as collecting input data without conscious interactions by the user, or actively controlled, defined as collecting input data with conscious interaction by the user.
3. The device must augment knowledge, facilitate learning or enhance the user's experience.

SAMPLE SIZE AND ACCURACY

Vandrico has taken every measure to ensure the accuracy and completeness of its database. Given the rapid developments of the sector and its evolution in understanding, the database is expected to continue to grow both in size and data availability. At the time of this report, information for 233 wearable devices was collected and analyzed. The reader is advised that this database may not be a collectively exhaustive list for the sector, but it should give an accurate representation for benchmarks.

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WEARABLE DATABASE UPDATES AND MARKET FUNDAMENTALS

There were 55 new devices added to the Vandrico Database in the last quarter, for a total of 233 devices at the time of this report. It is expected that at least 30 new devices will be added to the database within the next quarter. We made some major improvements the quality of device descriptions and accuracy of the information. Additionally, we began collecting battery information, of which 45.5% of the devices in the database have been documented.

A subtle, but powerful, feature on the database is the “Relative Device Score” radar graph (See Figure 1). It was designed to allow a site visitor to easily gauge the attributes of a device. The scoring for this is done all through a custom algorithm that adapts as new devices enter into the market.

The “Compatibility”, “Components”, “Connectivity”, and “Battery” are all directly derived from device data. However, “Uniqueness”, “Potential” and “Benefits” are all calculated using algorithms. Device uniqueness is based on comparisons made with all other devices on the database, while the device’s potential and benefits are calculated from device attributes. Understanding this graph will give the viewer an enhanced understanding of how a product compares with the market and make quick decisions on device purchasing or new device ideas.

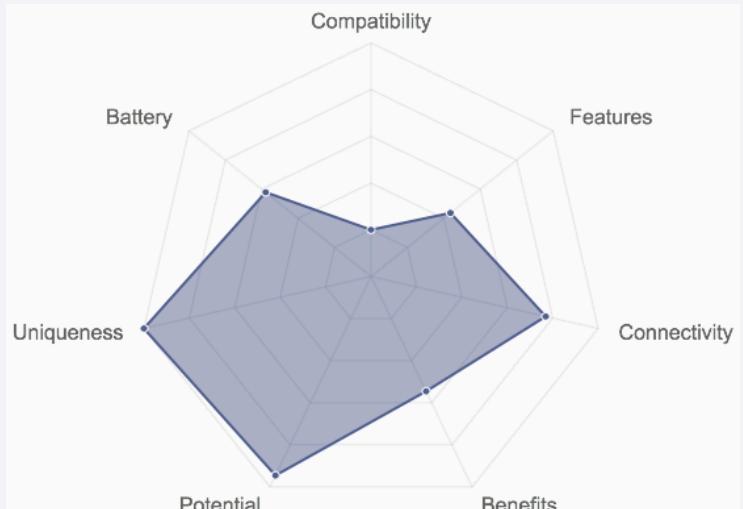


Figure 1: Relative Device Score Radar Graph

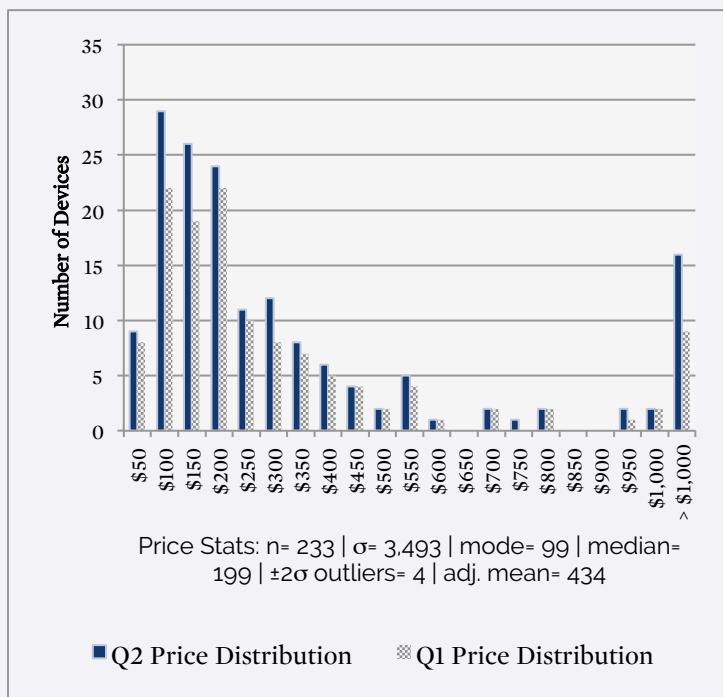


Figure 2: Q1 and Q2 2014 Device Price Histogram

As 55 devices were added this quarter, we created a compairson graph (See Figure 2). The distribution of devices did not appear to change significantly over the second quarter. The most notable change was the reduction of the standard deviation from 9,104 in Q1 to 3,493 in Q2, leading to a confirmation of a more concentrated pricing strategy from the sector. Our database shows us that 66.5% of the market is priced under \$300. As the number of substitute products continues to increase competition, it is expected that consumers will gain higher bargaining power over the next 12 months. Momentum is gaining in major outlets such as Best Buy and Future Shop with devices from Fitbit and Jawbone.

One issue that has come up over the past quarter is the incompatibility of Android Wear with iOS. As SmartWatches gain momentum, we could see higher competition for “the” wearable operating system of choice (See Operating Systems).

DISCUSSIONS ABOUT BATTERY LIFE OF WEARABLE DEVICES

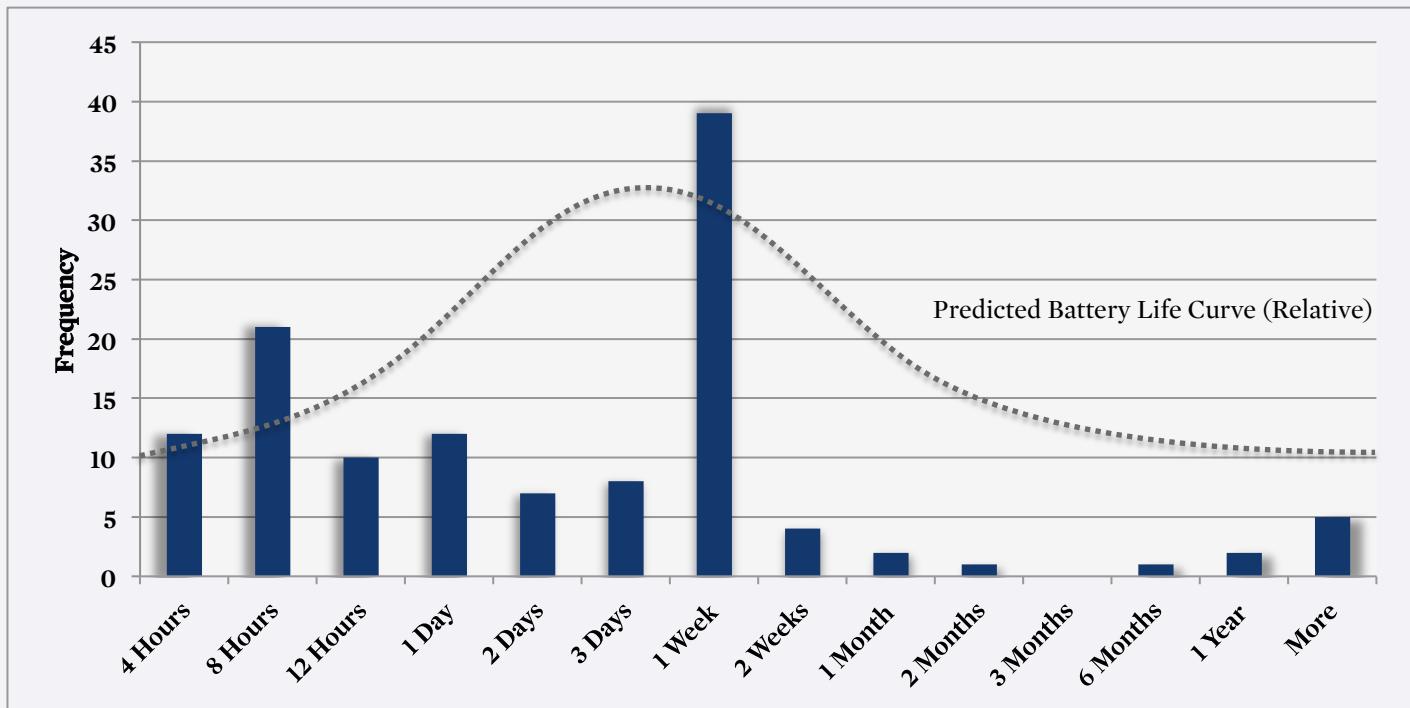


Figure 3: Battery Life Histogram

Batteries are the fundamental life-blood of today's mobile electronics. The advent of modern wearable technology has been met with an explosive demand for higher capacity batteries, low power electronics, and efficient operating systems. With price points and form factors aside, battery life serves as the next major limiting factor for wearable devices.

Device manufacturers are faced with balancing battery life and features inside the space restrictions of the wearable form factor. Size is the number one restriction for batteries.

Understanding the amount of acceptable battery life for a product is the keystone to its success in the consumer market. The first steps in this process are:

1. Open a channel of communication with potential users and create use-cases for the product.
2. Refine core functionalities and assess usage times.
3. Create clear requirements, goals and constraints to assist hardware and software designers in creating a product that meets the demand of customers.

Vandrico expects an average battery life of 3 to 4 days to become the norm in the years to come. Some devices, such as virtual reality displays, are unlikely to benefit from battery lives longer than 8 hours. Other devices, like those meant for GPS tracking and emergency alerts, will require battery lives to be as long as possible. For the majority of devices that a typical user will use on a daily basis, a battery life of 3 to 4 days removes the urgency of charging devices yet still gives device designers enough room to create new, feature-rich, and exciting products to present to customers.

DISCUSSION ABOUT THE NIKE FUELBAND

The Nike+ FuelBand was one of the most influential devices in the nascent wearables space. With other devices in the Nike+ line geared towards quantifying fitness, the FuelBand seemed like a good fit for the company. However, the abrupt departure of the FuelBand caused technology pundits across the globe to question the viability of wearables. Contrary to first impressions, this move by Nike demonstrates some interesting notes to take about competing in the wearables space.

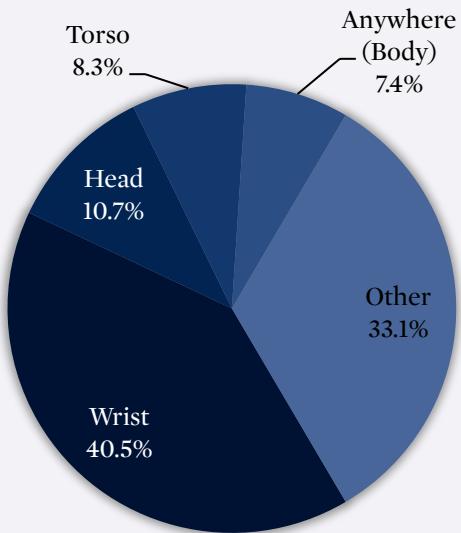


Figure 4: Fitness Devices by Location

to improve activity. Research from [Endeavour Partners](#) observed that one-third of US customers abandoned their wearable devices within 6 months. In order to create a sustainable product, devices must provide actionable benefits to consumers. Alerting the user to exercise and creating suggestions for complimentary exercises tailored for the user are both examples of potential actionable benefits for the wearable fitness space, but still may not be sufficient to drive continued purchases and sustained use.

If Nike were to succeed in the wearables space, they would potentially have to invest in primary research for the science behind wearables and create actionable benefits. Going vertical into an unknown field represented an uncomfortable risk to Nike, which is likely a contributing factor into their decision to shut down their FuelBand hardware team.

On the topic of actionable benefits to users, we have noticed that it is far more sustainable to use wearables in the enterprise environment where the health of a worker has a direct correlation to the safety of their operations. Information such as fatigue is a sustainable, long-term benefit for companies in the industrial sector.

The most competition in this sector comes from wrist-worn fitness tracker, which occupies 21.0% of the wearables market and 40.5% of the wearable fitness market. With battery life being far and above the most limiting factor, creating devices that are feature rich and continuously usable over at least two days is a challenging feat. This forces a narrow gamut of possible hardware specifications. With similar devices appearing in the market, the quality of data that the product provides is paramount to customer satisfaction.

Nike relied on a single accelerometer to provide activity data. Even with a large marketing push for the product, the data that was provided did not drive long-term actionable benefits. The device was simply a yardstick for determining activity levels and gave no recommendation

OPERATING SYSTEMS

Operating systems (OS) are the drivers behind any device's usable applications. Whether it is the versatility of big brands like iOS or Android, or the efficiency of a custom OS tailored to the product. Currently, wearable devices are struggling to find an OS compatible with their form factor and resource limitations. Connectivity and application compatibility have been considered almost equally important as hardware specifications. Device marketers have been using versatility as a buzzword to appeal to broader audiences. Users want their device to synchronize with their phones and communicate with their favorite apps, yet the majority of device manufacturers do not have the capability to create a tailored operating system. They choose to use existing big brand operating systems to ensure versatility whilst sacrificing optimizations. This shortcut comes at a cost. Until this quarter there were no operating systems designed for small devices with limited computing power, memory, and battery size. This causes resource mismanagement within the device resulting in a reduction of speed and battery life. It also results in an awkward user experience, as interfaces and designs intended for larger screens and more powerful processors leads to unlegible text and a choppy animations.

Google I/O 2014, which took place on the 25th of June, brought some light into the wearable OS space with the launch of Android Wear, an OS designed specifically for wearable devices. The immediate advantages begin with the simplified user interface and lighter operating system. It also provides a seamless integration with Android devices, providing an intuitive user experience.

Google I/O also announced the immediate release of the LG G Watch, and Samsung Gear Live. These watches, along with the Moto 360 (releases summer 2014), are already designed to use Android Wear.

One unprecedented feature of the LG G Watch is that it has an always-on LCD screen. In the past this feat has only been accomplished by monochromatic e-ink displays and Qualcomm's Mirasol technology, both of which offer a sub-par viewing experience by today's standards. The screen of any device is usually the component that draws the most power and although the G Watch only offers Bluetooth communication, an always-on screen is an impressive feature. It is likely that Android Wear has played a part in improving battery life. Given that Android's Project Volta aimed to increase battery life in Android phones, it would come as no surprise if Android Wear did the same for smartwatches.

There are other operating systems that are also under development for the wearable space. Samsung's Tizen OS is also touted to be another possibility for a featherlight operating system for wearable tech.

However, as Android Wear continues to build momentum it will become harder and harder for any other operating system to dethrone it in the future.



Figure 5: Android Wear smartwatches. Motorola Moto 360, Samsung Gear Live, LG G Watch (from left to right)

ADDITIONAL INFORMATION

FURTHER INQUIRIES

Vandrico has simplified its analysis for this report and has chosen to include a small sample of charts and data. For further information, or clarification, please contact us using the information below and a member of the team will be happy to assist you.

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WAS THIS REPORT HELPFUL?

The wearable technology database has become a useful tool for many friends in the industry. The team at Vandrico drew a small sample of information from the database to create this report. Now, we're asking for your feedback to help make it better.

We would love to hear from you regarding the following:

- What information helped you in this report?
- What information could add value to your team?
- Would you like to continue to receive this report every quarter?

<http://vandrico.com/survey/rpt2014q2>

DO YOU HAVE ANY SPECIFIC NEEDS?

Our clients are always asking us new and challenging questions, from "how should we approach detecting injuries" all the way to "how can my workers be more productive". Whatever questions or concerns you may have, we're here to help.

To book a free call with one of our representatives, please visit the following page:

http://vandrico.com/connect_now

Did You Know...

Wearable technology has a long history dating back as far as the 17th century. The Qing Dynasty was the first to miniaturize the abacus and place it on a ring. Centuries later, the first wristwatch was made for the Queen of Naples in 1810. It wasn't until 1961 when computing power was introduced to a shoe that wearable technology really started to take off. The "gambling shoe" was used to calculate better odds and cheat the roulette table. It took months for casinos to catch on and catch the culprits.

Today, we are seeing the Fortune 500 race to wearable technology. Companies like Nike, Samsung, Google and more are all trying to capture the new market. As with the SmartPhone boom, the natural progression for this market is to generate an ROI for businesses.