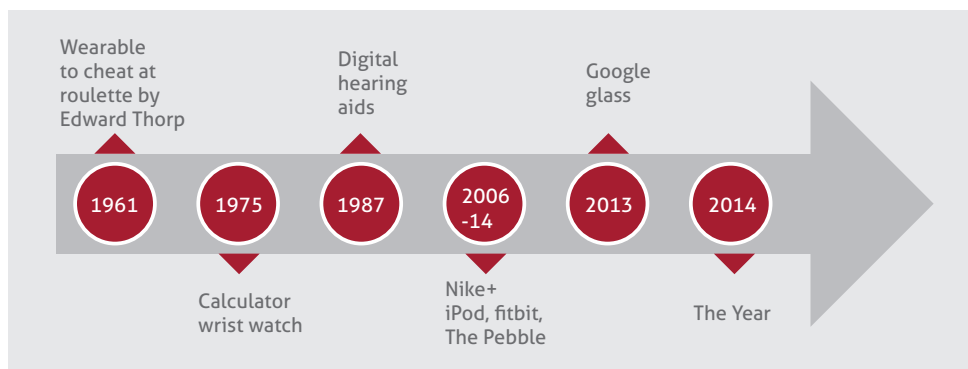


WHITE PAPER

Wearables – Is the future really as bright as it seems?



Wearables – technology devices that are worn, such as watches and glasses that are worn, – have taken their rightful place at the leading edge of innovation. They are being talked about and used everywhere – from healthcare, fitness, retail, banking and insurance to manufacturing and travel. For a device that was first created way back in the 1960s to cheat at the roulette wheel, it has been a remarkable journey indeed.



The worldwide wearable device market is expected to hit USD 6 billion in 2014, and USD 20.6 billion by 2018, growing at an annual growth rate of 36%. In terms of number of units sold, global shipments of wearable computing devices are expected to triple in 2014 to over 19 million units and rise to 485 million sold units by 2018, according to ABI research. The real question now is how much of this growth is real and how much of it is just hype? To find the answer, one must look beyond the current “cool gizmo” perspective of wearables and analyze its usage and value in each industry segment.

Health and fitness

Healthcare and fitness wearable devices and applications are already into the mainstream. According to ABI research, wearable sport and fitness-related monitoring devices will reach 80 million by 2016 and growth is not expected to slow down any time soon. But, there could be polarization in terms of what kind of instruments will become more popular. For example, ear-based wearables have so far been lower profile as opposed to eye and wrist-based ones. However, recent activity in this segment indicates that ear-based devices are gaining an edge primarily because the blood vessels in the ears allow for more accurate biometric measurements. Additionally, since voice is the most common way to communicate, ear-based devices meet the typical requirements of a doctor or surgeon. That being said, in the fitness segment, the reign of wrist-based wearables is expected to continue with the advent of multiple brands of sports watches, fitness bands and other activity tracking devices. The launch of the long-awaited Apple Watch will heat up the already buzzing industry. In fact, some analysts have gone so far as to say that Apple Watches will completely wipe out competitors’ fitness trackers, but that is something that we will have to just wait and watch.

Retail

Retail is one industry segment which can propel wearable technology beyond health and fitness. Wearables in retail can have significant impact on both retailers as well as end consumers. Retailers can make product and customer information easily accessible to consumers via Google Glass, Wrist Gear or similar devices. Once this is combined with payment processing, the end-to-end retail experience will become more pleasurable for the consumer. Several players in the retail sector have already started investing in wearables. Kenneth Cole has introduced a Google Glass app for advertising, Paypal has developed a payments app for Samsung Gear, and Barneys is collaborating with Intel to introduce smart bracelets in their stores. Larger retailers like Walmart, Home Depot and Tesco are warming up to the concept and exploring through their research labs. With proofs-of-concepts currently being developed in the retail segment, it will only be a few more quarters before wearable technologies become commonplace in the retail sector. Privacy concerns, especially using wearables with built-in cameras, are one of the major inhibitors that need to be tackled by the industry for faster and wider acceptance.

Several new retail areas such as location-based sales promotions, in-store operations, inventory planning and product placements are being explored for wearable applications.

Banking and insurance

Wearables can create a differentiated experience for the end consumer in the area of banking and insurance. However, unlike the retail sector, the challenges for widespread adoption are much more complex.

They can be used for balance inquiries, alerts and real-time receipts, as well as making payments, following stock markets on the go and browsing latest insurance offers and loan options. While banks are one of the biggest holders of consumer data, innovation has been a slow process due to regulations and the financial industry's inertia. A few banks have started tech trials. For example, Spain's Banco Sabadell has built a Google Glass proof of concept, CaixaBank has built a smart watch application to follow stock markets, and Westpac has developed a Google Glass app to check account balances and other transactions. But most banks are yet to hop onto the wearables bandwagon. The insurance industry is responding even slower than banks. Use cases around using wearables for life threat evaluation are being explored currently. Overall, however, the penetration of wearables in this industry is in a nascent stage.

Addressing security and privacy concerns and integrating new payments capabilities (such as iBeacon) will be on top of the agenda once action increases in the Banking and Insurance industry.

Wearable technologies that hold potential for the manufacturing sector include smart glasses, watches, sensors and textiles. Improving the safety of workers is one of the primary applications of wearables in the manufacturing industry. Increasing agility, locating faulty wires in production line, notifying workers about hazards (like the presence of toxic substances on shop floor etc) are some of the other areas where wearables can be put to use. However, the current crop of wearables has serious limitations when used in a shop floor scenario.

The usage of gloves is a major barrier for typical touch-sensitive devices that are currently in use, or highly noisy shop floors that make voice recognition a tough challenge. Hence, the industrial manufacturing segment needs innovation from device-level, making mainline adoption a longer process. But that being said, there is action happening on this front as well. There are multiple manufacturing companies that are reviewing wearables for maintenance, repairs and over-the-shoulder coaching, in addition to areas such as production, quality assurance, safety, warehousing and logistics. For example, Boeing is currently experimenting with augmented reality for aircraft maintenance, Vuzix's M100 hands-free device instructs workers where to find a product in the inventory, and Fraunhofer Research Institution is researching on

technologies that help identify toxic substances easily. A concerted move is yet to happen in this industry and hence the outlook is a medium to long acceptance time, with key enablers being worker safety and agility and seamless integration with backend processes.

Travel and transportation

In the travel and transportation segment, the possible applications for wearable technology are practically boundless. These include assisting staff with delivering passenger related information on the fly, searching and booking tickets, providing flight information such as flight and boarding status, helping ground crew.

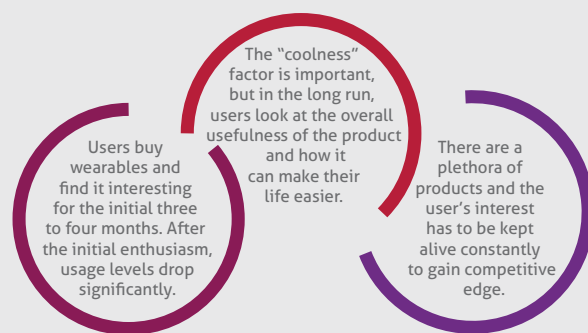
Airlines such as Virgin Atlantic, Iberia and Japan Airlines are currently conducting trials related to on-the-ground traveler comfort, boarding and departure experience etc. with the help of wearables.

Recently, Spring Airlines provided flight attendants with Google Glass to evaluate how it can help improve customer service. There are also discussions around how Google Glass can improve the overall in-flight experience for travelers. SWIFT boarding is developed by SITA in collaboration with Google Glass and Vuzix M100 which verifies boarding passes and passports. Garmin D2 has launched a GPS watch designed specifically for aviators to load flight plan information. Virgin Atlantic has launched a wearable technology pilot scheme in collaboration with SITA to provide personalized passenger information to staff on Google Glass or Sony Smartwatch 2. Considering the activities happening in this industry, the travel segment is poised to be widely transformed through wearables in the near future.

The verdict

The success of wearables in the health and fitness market has provided a good base to analyze what has worked and what has not.

Interesting facts about wearables across industries:



To succeed in this market, the built solutions need to have a perfect product differentiation strategy as well as a long-term utility proposition. Wearable companies have to tie all the ends together and focus on creating a complete digital-enabled ecosystem around the product, rather than building discrete devices for particular applications.

Another important consideration for mass adoption is the price. Wearable devices are currently expensive, with individual unit prices ranging from \$150 to all the way up to \$1000. This is understandable considering the nascent stage of the technology, but definitely not sustainable. The PC and phone industries have also been through the same phase and it can be assumed that it is only a matter of time before wearables become more affordable. The fact remains that for wearables to become mainstream, prices must (and will) come down and fast.

It is clear that the retail segment will grow faster than the others, followed by travel and transportation. Cost will be an inhibitor for large scale adoption, but will not be the most critical one. Issues related to security and privacy, as well as long term utility, will be key challenges. The evolution of industry-specific solutions rather than a "one solution fits all" kind of scenario will ensure greater adoption and cost-effectiveness.

Wearables are vibrant inventions for the digital world. As long as we do not get misled by the cool factor and focus on long term utility of wearable solutions, there is every reason to believe that the hype is well-justified.

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