



RESEARCH REPORT

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EXECUTIVE SUMMARY

Wearable Device Market Forecasts

Smart Watches, Fitness Trackers, Smart Glasses, Smart Clothing, Body Sensors, Wearable Cameras, Smart Headphones, and Other Wearable Devices for Consumer, Enterprise, Healthcare, Industrial, Public Safety, Sports, and Other Markets

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SECTION 1

EXECUTIVE SUMMARY

The wearables market continues to generate a lot of attention, both positive and negative. Fitness trackers and smart watches remain the flag bearers of the wearables market, seeing growth but at a slower pace than estimated earlier. Fitness trackers are facing a tough road ahead, with the market possibly reaching a saturation point as the addressable market for fitness enthusiasts and casual users starts to reach its limit. Smart watches are catching up with fitness trackers in terms of volumes and continuing to see momentum courtesy of the Apple Watch, while fitness tracker companies like Fitbit are experiencing as much as a 40% drop in revenue over recent quarters. Tractica estimates that sales for the Apple Watch have been largely flat year-on-year (YoY), with the Apple Watch 2 helping boost slow sales toward the end of 2016 and continued anticipation of the Apple Watch 3 that is expected to be announced toward the end of 2017. Also, kids' smart watches are selling in large volumes in China, which has made up for generally flattish growth for the Android Wear and the Apple Watch in 2016.

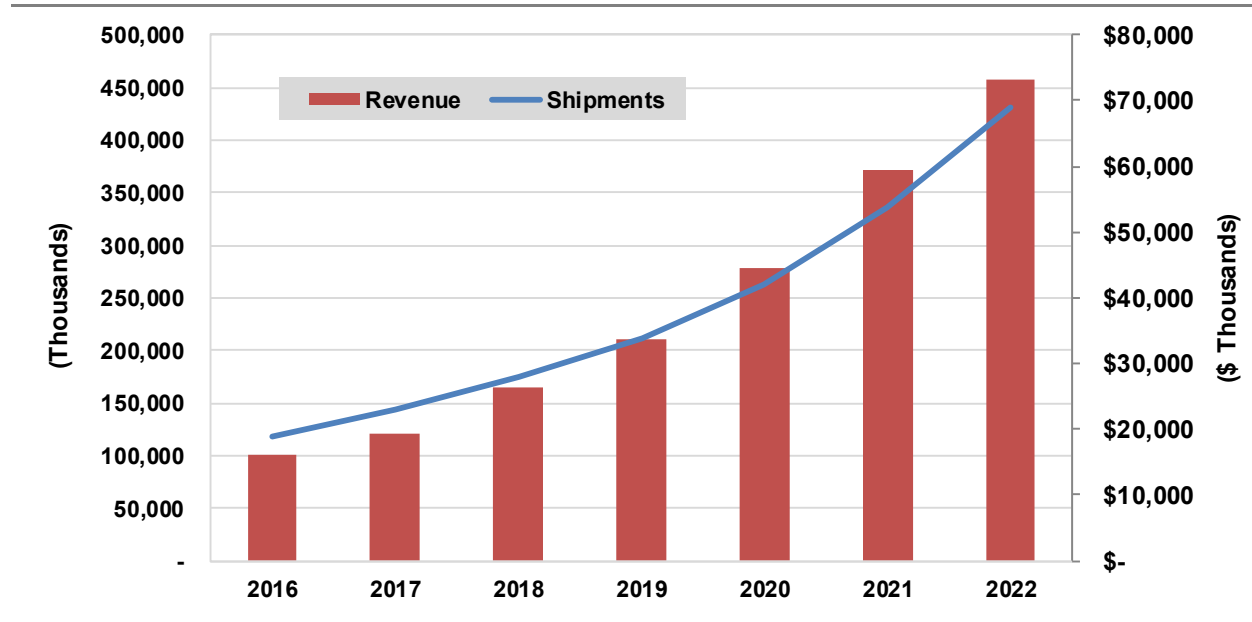
Both smart watches and fitness trackers continue to see market consolidation, with companies like Pebble being acquired by Fitbit and having their product discontinued, while fitness tracker company Jawbone is undergoing liquidation. Compared to Tractica's last iteration of the *Wearable Device Market Forecasts* report in 2016, fitness trackers and smart watch growth rates have been reduced by 50% based on recent changes in the market. Fitness trackers are expected to now grow at an 11.3% compound annual growth rate (CAGR) and smart watches at a 17.3% CAGR between 2016 and 2022.

Nevertheless, fitness trackers and smart watches remain the largest device segments for wearables, accounting for more than 80% of shipments in 2016, with their share projected to go down to 50% by 2022. Body sensors are expected to be the third largest wearable device segment by 2022, driven largely by wearable patches used in healthcare applications, with body sensor shipments reaching 92.1 million by 2022. Healthcare and health-focused applications in general are seen to be a major driver for the next phase of growth in wearables. Wearable device companies that pivot beyond fitness and activity tracking, toward preventing and managing chronic health conditions like diabetes and heart problems will succeed in the long run. Tractica believes that chronic health management, both in a professional healthcare setting, as well as a general consumer setting, will help wearables break into the mainstream.

This report has a separate standalone device category for smart headphones, which are essentially seen as computers for the ear, providing smart features like fitness tracking, voice assistants, translation, smartphone control, or gesture control through a range of sensors, artificial intelligence (AI), and deep learning. Smart headphone shipments are estimated to grow from 833,000 in 2016 to 13.7 million by 2022. The smart glasses segment is another breakaway segment for wearables estimated to see shipments grow at a 131% CAGR between 2016 and 2022, driven by the move from assisted reality toward mixed reality.

Overall, Tractica forecasts that the market for wearable devices will grow from 117.5 million in 2016 to 430 million in 2022, representing a CAGR of 24.1%. Corresponding device revenue is estimated to grow from \$16.1 billion in 2016 to \$73.3 billion in 2022. Asia Pacific has edged out North America to become the top region for wearable device shipments, largely due to a growing appetite for fitness trackers, smart watches, and wearable cameras in China.

Chart 1.1 Total Wearable Device Shipments and Device Revenue, World Markets: 2016-2022



(Source: Tractica)

This 3Q 2017 update has forecasts based on actual 2016 shipment data, vendor activity, innovation over the past 12 months, and, notably, the consumer response to wearables during 2016. As forecast by Tractica in 2014, the cannibalization of fitness trackers by smart watches has started to accelerate in 2016 and Fitbit continues to see a major decline in revenue. For fitness trackers to grow from here, and differentiate themselves from smart watches, they will need to pivot toward chronic health management and prevention.

Apple is already moving from positioning the Apple Watch as a fashion accessory to becoming more of a health and wellness platform, with its HealthKit application framework allowing both Federal Drug Administration (FDA)-approved and general health-related applications to be built by developers to manage everything from heart conditions to insulin delivery and glucose levels. Tractica expects Apple to lead the smart watch health push, with Google’s Android Wear and Samsung’s Tizen to follow suit. At the same time, Tractica continues to see activity in micro-segments like kids’ watches, fashion watches, watches for the elderly, watches for adventurers, analog smart watches, and voice-controlled smart watches. Traditional watch manufacturers have embraced the smart watch, offering both touchscreen smart watches, as well as analog front-end watches that look and feel like a traditional watch, but have smart features for fitness tracking and smartphone connectivity.

Wearable cameras, which earlier represented the third largest wearable device category after fitness trackers and smart watches, have been downgraded due to slow growth and possible saturation of the market, especially for action cameras. GoPro, the largest and most well-known action camera company, continues to post disappointing sales, and saw its shipments fall by 28% in 2016. Chinese competitors like Yi (Xiaomi) are eating away at the GoPro market share with high-quality products at competitive prices. Also, police body camera numbers have been upgraded based on information that China has become a major marketplace for police body cameras, both in terms of manufacturing and consumption.

Smart clothing continues to be a niche market, and while there has been growth in the number of active vendors and the range of smart clothing solutions in the market, it has yet

to see mass-market deployment and acceptance. Smart clothing vendors have focused their efforts around fitness applications, with most vendors targeting advanced fitness users with smart vests, smart bras, smart socks, and smart tights that can track everything from muscle activity to foot cadence and heart rate. Smart footwear holds a lot of promise, but after the initial announcements from companies like Under Armour, none of the mainstream sports apparel makers like Nike or Adidas have made any forays into smart footwear. However, Tractica expects the mainstream sports apparel brands, and fashion high street brands to move into smart clothing within the next 2 to 4 years, as the cost and complexity of manufacturing comes down and the phase of experimentation gives way to commercially viable smart clothing products. Smart clothing shipments are estimated to grow from 1.7 million units in 2016 to 26.9 million units by 2022, a CAGR of 58.6%.

In summary, 2016 saw a continuation of the growth trend in wearables, despite fitness trackers going from outperformers to underperformers, and smart watches seeing continued acceptance of the Apple Watch and growth in micro-segments like kids' watches. New segments like smart headphones are starting to emerge, and possibly a new class of wearable ear computers will take shape in the coming years. Health seems to be a major theme in wearables going forward, as wearable patches hold a lot of promise, but in general, the fitness aspects of wearables will possibly reach a saturation point. Rather than keep you fit, wearables that can prevent and manage chronic conditions like diabetes and heart disease are likely to see wider acceptance with a larger proportion of the population seeing an impact, and leading to mass-market acceptance for wearables.

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SCOPE OF STUDY

This market forecast report covers the market for wearable devices, including smart watches, smart glasses, fitness trackers, smart clothing, body sensors, wearable cameras, smart headphones, and other wearables. Body sensors include pregnancy and baby monitors, headbands, HRMs, posture monitors, wrist devices, movement sensors, wearable patches, and 3D trackers. Other wearables include location trackers, smart jewelry, gesture control devices, pain management devices, and delivery pods. The market data is categorized by device shipments and revenue provided for different world regions, application markets, and connectivity types. The application markets covered in this study include consumer, enterprise, industrial, public safety, healthcare, sports, and others. The connectivity types include Wi-Fi, Bluetooth, NFC, radio frequency identification (RFID), cellular, GPS, and others. The forecast period for this report extends from 2016 through 2022, with 2016 representing actuals and the 2017 to 2022 period representing Tractica's projections for market growth.

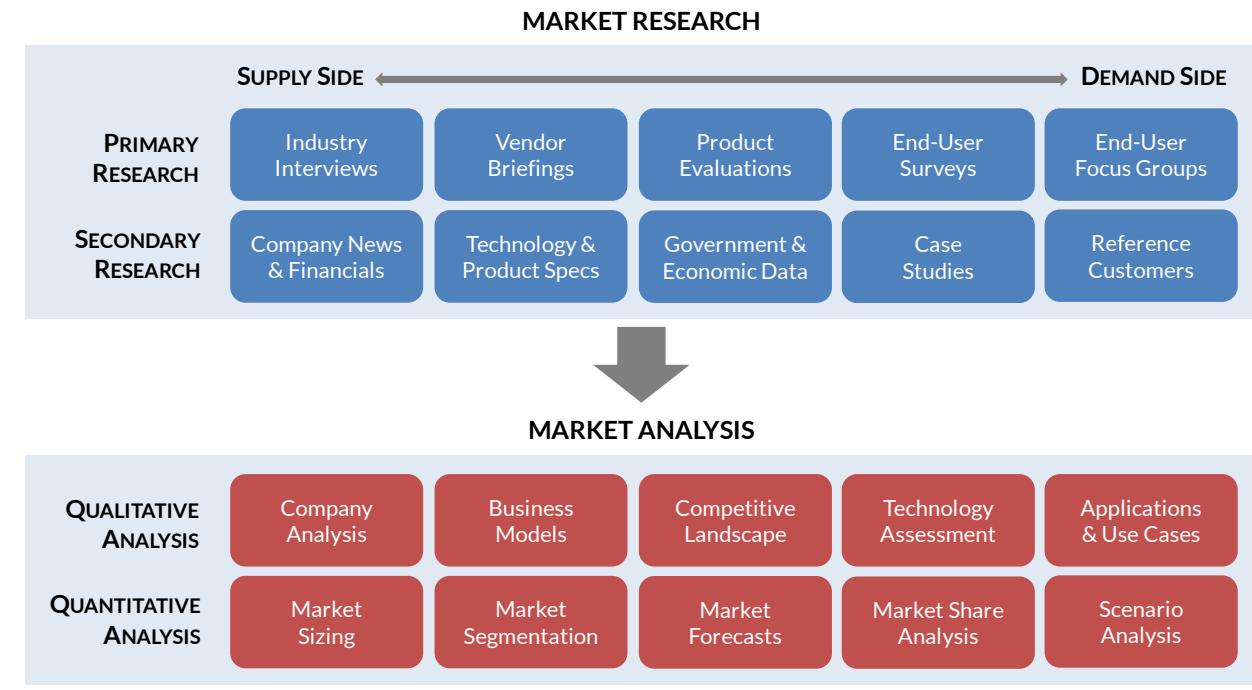
SOURCES AND METHODOLOGY

Tractica is an independent market research firm that provides industry participants and stakeholders with an objective, unbiased view of market dynamics and business opportunities within its coverage areas. The firm's industry analysts are dedicated to presenting clear and actionable analysis to support business planning initiatives and go-to-market strategies, utilizing rigorous market research methodologies and without regard for technology hype or special interests including Tractica's own client relationships. Within its market analysis, Tractica strives to offer conclusions and recommendations that reflect the most likely path of industry development, even when those views may be contrarian.

The basis of Tractica's analysis is primary research collected from a variety of sources including industry interviews, vendor briefings, product demonstrations, and quantitative and qualitative market research focused on consumer and business end-users. Industry analysts conduct interviews with representative groups of executives, technology practitioners, sales and marketing professionals, industry association personnel, government representatives, investors, consultants, and other industry stakeholders. Analysts are diligent in pursuing interviews with representatives from every part of the value chain in an effort to gain a comprehensive view of current market activity and future plans. Within the firm's surveys and focus groups, respondent samples are carefully selected to ensure that they provide the most accurate possible view of demand dynamics within consumer and business markets, utilizing balanced and representative samples where appropriate and careful screening and qualification criteria in cases where the research topic requires a more targeted group of respondents.

Tractica's primary research is supplemented by the review and analysis of all secondary information available on the topic being studied, including company news and financial information, technology specifications, product attributes, government and economic data, industry reports and databases from third-party sources, case studies, and reference customers. As applicable, all secondary research sources are appropriately cited within the firm's publications.

All of Tractica's research reports and other publications are carefully reviewed and scrutinized by the firm's senior management team in an effort to ensure that research methodology is sound, all information provided is accurate, analyst assumptions are carefully documented, and conclusions are well-supported by facts. Tractica is highly responsive to feedback from industry participants and, in the event errors in the firm's research are identified and verified, such errors are corrected promptly.

Chart 7.1 Tractica Research Methodology


(Source: Tractica)

NOTES

CAGR refers to compound annual growth rate, using the formula:

$$\text{CAGR} = (\text{End Year Value} \div \text{Start Year Value})^{(1/\text{steps})} - 1.$$

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenues, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2017 U.S. dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

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