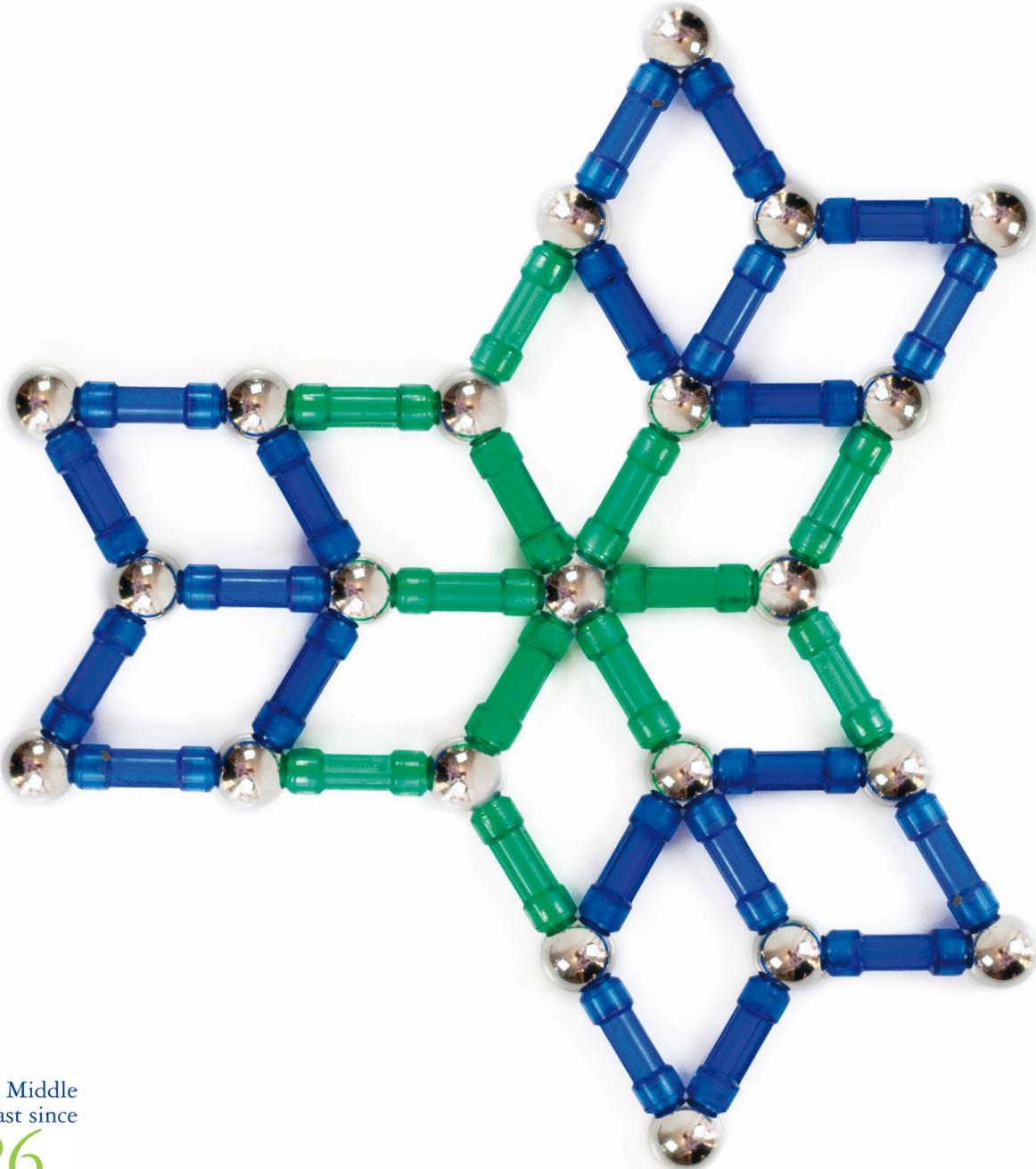


Technology, Media &
Telecommunications
Predictions 2014
Middle East



Wearables: the eyes have it

Deloitte predicts that smart glasses, fitness bands and watches, should sell about 10 million units in 2014, generating \$3 billion. Of these wearable computer form factors, smart glasses should generate most revenues from sales of about four million units at an Average Selling Price (ASP) of \$500¹². Smart fitness bands should sell four million units, at an ASP of \$140; smart watches should sell about two million units at an ASP of \$200¹³.

Smart glasses are go

The mass launch of smart glasses is likely to be met by skepticism and delight, as is customary with the launch of each new digital form factor¹⁴. And the first models of smart glasses are likely to appeal to, and be purchased by, a niche¹⁵. But at a global level the volume of early adopters in 2014 may well number in their millions, with demand increasing to the tens of millions by 2016 and surpassing 100 million by 2020.

This may seem an unlikely outcome for what is considered a new and slightly eccentric form factor, which has significant and fundamental constraints: smart glasses have to be transparent, may never work well in direct sunlight, and because they have low contrast are not suitable for long form video. The visible display size will always be small, for safety reasons, with fewer than 10 words readable at a time¹⁶; and the physical space available for a battery on the temple of the glasses is so constrained that adding cellular connectivity will be challenging¹⁷.

But smart glasses are the next stage in the roll-out of digital connected screens in our professional, social and private lives. They represent continuity, not a brand new start, much in the same way that tablets were simultaneously new and familiar when launched in 2010. Consider that in 2014, billions of us will glance trillions of times at connected screens, from vast digital billboards to computer screens, and from car dashboards to smartphones. The addition of a tiny screen which is permanently in line-of-sight will complement the array of screens we already use: it may enable some of us to stay permanently updated with the flows of information we crave.

The initial price point for the sale of smart glasses in 2014 should be between \$400 and \$600, which for most people is a significant sum of money for a device whose benefits are largely unproven. Some units will cost thousands of dollars, but demand for these will be minimal.

Nonetheless, in 2014 there are likely to be tens of millions of individuals who would consider paying an average \$500 for the first generation of smart glasses and millions who will actually purchase them.

These include: early adopters, for whom being at the bleeding edge of innovation is of paramount importance, even if the user experience in terms of interface and reliability requires further refinement; wealthy individuals for whom \$500 would be a relatively small amount to pay (there are about 12 million people with investable wealth of \$1 million in the world)¹⁸; and professionals whose job is to investigate the potential of new products such as smart glasses for increasing productivity.

Usage of smart glasses in 2014 is likely to focus on consumer applications, with enterprise usage becoming more prevalent later as the product specification improves.

The most common consumer usage of smart glasses is likely to be any screen based application that frees up the user's hands for other tasks. A typical usage should be navigation. For business travelers, a few instances of smart glasses helping the owner to arrive without getting lost – and being able to brag about it – may justify the purchase price¹⁹. For tourists, smart glasses will allow them to take photos and video by winking²⁰. There may also be some video games applications, but the appeal of these will be limited by smart glasses' small screen size. Sports and fitness may also provide a rich context for usage, allowing participants to view performance metrics in real time, and analyze their performance as they play, bike or ski²¹.

Industries most likely to benefit from smart glasses in the medium term include manufacturing, oil and gas. Analysts have estimated that smart glasses could save companies up to one billion dollars per year by 2017, through displaying instruction guides, relaying photos and videos, and interacting with remotely located experts²².

These devices may provide another insertion point for advertising, whose messages may be linked to the user's location, product in line of sight, or a bar code.

Wearing a screen to the right of one's nose may appear a little strange at first. Talking to one's spectacles may also seem eccentric.

But talking on a phone in the street, and more recently talking via hands free kit have also seemed strange, as has taking photos with a ten inch tablet. Yet these behaviors have subsequently become accepted as normal.

The price of smart glasses will be a function of the bill of materials and the margins that vendors want to make on the product. We expect that initial component costs will be at least \$200²³: miniaturization does not come cheap. If the first batch of smart glasses sells out, we are likely to see ultra cheap versions sold at \$100, mirroring trends seen in the early days of the tablet and smartphone markets. But these devices are likely to be as good as the components they are built on, and sell in modest volumes. As for the likely margins, we would expect that some vendors may trade high margins for other benefits, such as income from applications and the rich stream of consumer data, such as location, that these devices will generate.

The hundreds of millions of people who have contact lenses or have had laser surgery are likely to consider smart glasses, despite having invested in removing the need for spectacles to correct vision. There is after all a significant market in sunglasses, items which can cost hundreds of dollars per pair, and may last only a single season before requiring replacement²⁴.

The regional lens: smart peaking already

With the second highest smart phone penetration in the world²⁵, the Middle East is no stranger to smart technology.

A decade ago mobile phones with cameras were restricted in many Arab countries and even banned in Saudi Arabia (on privacy and security concerns). Camera phones' subsequent acceptance and high popularity has led to their successful adoption and penetration²⁶. Similarly, the region has also embraced social networking with the likes of Facebook, Twitter and YouTube now featuring heavily in the fabric of Arab society. For a region often viewed as highly conservative and private relative to the rest of the world, the shift towards the adoption of new technologies has been remarkable. We expect this trend to continue as smart glasses launch in the region.

Recent events have demonstrated the region's intrigue in and appetite for smart devices. Recently a set of Google Glass Explorer glasses, the developer version of Google Glass, sold for \$12,250 on Dubai's dubizzle.com²⁷. This is eight times the price in the US and UK and almost two and a half times the price of similar units auctioned on eBay in other regions²⁸.

However, smart glasses' high price point may only be accessible to a wealthy niche. Early adoption will most likely be driven by the high net worth individuals section of society (with investable wealth of at least \$1 million), representing an estimated 500,000 potential early smart glass adopters²⁹.

Even at a price of \$500 for the commercial version of smart glasses, these are still expensive for the average price-sensitive Arab consumer. Such price pressures have already been experienced in the Middle East smart phone market, where their ASP has declined to an estimated \$338 in 2013 and is expected to drop further still to \$230 by 2017³⁰. Miniaturization is expensive and it may be a greater technical challenge to build smart glasses than smart phones, so prices for smart glasses may not fall as fast as they did for smart phones. Corresponding smart glass affordability and uptake by the wider Middle East consumer base should therefore be more gradual over the longer term.

Nevertheless, regional organizations and individuals fortunate enough to obtain a set of Google's Glass Explorer are recognizing the vast range of possibilities and are certainly finding innovative ways of using and putting this new technology to the test.

Smart peaks of the Middle East



Smart glass MasterPass: UAE telecoms operator Etisalat in partnership with MasterCard Labs has been working on connecting the MasterPass digital wallet with Google's smart glasses to enable consumers to use their smart glasses to shop online³¹.



Mobile "first-person" journalism: Journalists from Vice Media used Google's smart glasses in their coverage of the recent protests in Istanbul and Cairo, performing first-person hands-free live recordings in conjunction with apps such as Google Translate to communicate with locals³².

PHILIPS



IntelliVue patient monitoring smart glass solutions: Philips has developed a hands-free solution which links Philips IntelliVue patient monitoring software to Google's smart glasses, enabling healthcare providers to view vital patient data remotely on the move and for decision support in the middle of an operating procedure. Philips is working closely with the Saudi private healthcare sector and Saudi Ministry of Health to potentially bring this solution to the Kingdom as part of their joint initiative in tailoring innovative solutions to solve existing challenges and shape the future of healthcare in Saudi Arabia³³.

Smart peaks of the Middle East



atheer labs



Smart 3D augmented reality glasses: Atheer Labs, founded by a Lebanese entrepreneur, has developed lightweight smart glasses that offer an augmented reality display with a 65 degree field of view in 3D. Users can exercise with virtual targets, play 3D games and conduct conference calls whilst browsing online. The device is supported by hand sensors and an advanced algorithm but needs to be connected by a cable to an Android mobile device. Priced at an ASP of \$350 the new device serves as a potential alternative and competitor to Google's smart glasses, which only displays a 12 degree frame in 2D in the corner of one's view³⁴.

As the smart peaks above show a promising array of smart glass solutions, their real test and long term sustainability will be in their actual range of usefulness to the Arab consumer, especially if they have to spend hundreds of dollars to acquire them.

As we have seen with smart phones, the key to unlocking and monetizing smart glass usage in the Middle East is through local development of region specific applications, tailored specifically towards the Arab consumer's evolving digital needs³⁵.

The strong level of interest, curiosity and opportunity in the potential applications of smart glasses will certainly spur regional development in this space. It is therefore only a matter of time before the region's smart app ecosystem will evolve to a point where slowly but surely, Arab eyes will have it.

Smart fitness bands: moderately healthy

The smart fitness band, a form of wearable computing typically worn on the wrist, should enjoy reasonable demand in 2014, but the market for such devices may never be mainstream. Smart fitness bands measure a range of activities from paces walked to hours slept, and tap into the trend for the 'quantified self', whereby many aspects of one's activity and being are measured³⁶.

Interest may not become mainstream, even in the medium term.

There are likely to be two categories of buyers for these devices. One is sports enthusiasts who already undertake a lot of exercise and wish to track their activity. They are likely to focus on high end devices that provide highly accurate measurement of a range of functions. The second and much larger category is individuals who may buy, or be gifted, a fitness band in order to effect a change in their behavior, hoping that by measuring the exercise they take, they will exercise more.

However, for this group smart fitness bands may simply confirm, via an app or otherwise, a long term lack of interest in exercising, and as such the device may cease to be used following an initial burst of enthusiasm³⁷.

A further, significant barrier to smart fitness bands becoming mainstream is the incorporation of advanced satellite navigation, accelerometer, gyroscope and compass in a growing range of smartphones³⁸. Owners of high end smartphones that offer these functionalities are likely to number in the high tens of millions in 2014 and may decide that they do not need to spend an additional \$100 on purchasing a fitness band³⁹.

Young but less active in the Middle East

Tracking physical and sporting activity may be of low appeal to the region's consumers due to the levels of physical activity. The Middle East's population is young, with half under the age of 25⁴⁰, but is also relatively inactive⁴¹, with as much as 60 percent of GCC inhabitants classified as insufficiently active⁴². Between five and ten percent participate actively in sports⁴³, which suggests a much lower addressable market for smart fitness bands in the region.

That said, smart fitness as a concept is generating some interest amongst individual sports enthusiasts and certain investors in the region.

Mini case study: Instabeat⁴⁴



Instabeat, a small sports technology start-up set up by a Lebanese entrepreneur in 2011, is a key example, which has gained traction through crowdfunding and certain Middle East technology investors.

In partnership with a Chinese manufacturer, Instabeat has been developed as the world's first waterproof heart monitor, mountable on goggles and capable of providing swimmers with real-time visual feedback on their swim to help them reduce their drag.

Despite the home-grown inspiration, the smart fitness device has attracted more international acclaim and interest as opposed to local, as the first batch of the product is planned to be shipped out to 47 countries worldwide, targeting international sports consumers.

Depending on international sales success, Instabeat may also explore similar wearable technologies for other sports including skiing, bicycling and running.

Instabeat's application and initial success highlights the criticality of line of sight, and how it can also threaten smart fitness bands as the more dominant form factor for sports and fitness as well.

Less time for smart watches

We expect smart watches to sell approximately two million units in 2014, typically priced at \$150-\$300. They are likely to remain specialist devices and be outsold by smart glasses over the long term⁴⁵.

This may seem counter-intuitive. After all, the value proposition for watches is well established. People have worn watches to tell the time, and to display status or wealth, for hundreds of years. By comparison, attaching a screen to a pair of glasses and then talking to the device may seem unnatural.

But arguably checking information on a wrist is a declining practice, whereas putting information in our line of sight, either via smart glasses or by placing a smartphone in the field of view, is an emerging one. Watches mattered from a practical perspective when they were the only way to tell the time⁴⁶. Today smartphones have assimilated most of the functions of an advanced wristwatch, and synchronize the time with mobile networks which rely on atomic clocks⁴⁷. If users glance at their smartphone 120 times each day, they should already have a pretty good idea what time it is. Further, there are a host of other displays that show the time, from PCs to ovens, and the need for a wristwatch is diminishing especially among young age groups⁴⁸.

Conversely, integrating smartphone functionality into a device that fits on the wrist is challenging, and entering data on small panels is tricky. Smart watch screens are small relative to those on smartphones, so the smart watch has to act as a companion device to a smartphone. Further, traditional watches trade on their ability to go for long periods without requiring a new battery or winding up, and smart watches that are not based on e-ink may need charging every day.

Incorporating smartphone capability into a watch is not cheap, and while a \$200-\$300 smart watch may cost less than smart glasses, there is likely to be little incremental benefit from having a smart watch in addition to a smartphone⁴⁹.

Middle East: fashionably late

Although the incremental benefit of a smart watch may be marginal, and users may not glance at them as frequently to tell the time, on the wrist they are the most visibly displayed form factor for the longest period of time. For this reason, consumers in the Middle East are more likely to buy into their aesthetic value as a fashion or status symbol^{50 51}, with the desire of being seen as trendy and cutting edge. At least in the Middle East, design for this form factor is the critical success factor and of paramount importance.

However, designs of smart watches today are seen to be on the bulky side and still have some way to go before they match up to the higher aesthetic standards traditionally required from wrist watches⁵². Consequently, Middle East consumers have not so far bought into smart watches, which has reflected in disappointing sales in the region for smart watch makers⁵³. Smart watches therefore have to be more pleasing to the eye, more 'sleek' and stylish if they are to appeal to Arab consumers. After all, the Arab consumer has to look good. Until designs improve, local uptake is therefore likely to take its time.

Bottom line

Wearable computing is a tantalizing and lucrative market, which is presently characterized by a degree of uncertainty.

A significant grey area is regulation, which has a major bearing on the potential market size. For example, there may be questions about the usage of smart glasses, which potentially enable anything heard or seen by a smart glasses user to be captured, shared and archived⁵⁴. However smartphones already have a similar capability to capture video, stills and audio, so smart glasses' ramifications on privacy are not wholly new⁵⁵.

Smart glasses may well get prohibited in some environments – such as in some schools, courtrooms, board rooms and golf courses, where smartphones are already banned – but that still leaves many other places where they could be used. It is worth considering that in some venues, such as restaurants and clothes stores, taking photos is actively encouraged and the quantity of photos taken, shared and rated is considered a positive.

Smart glasses are unlikely to be allowed when driving. In some jurisdictions, current laws make it explicitly illegal to have a monitor capable of displaying video in the field of view of a driver⁵⁶. It is not necessary for the police to prove that the driver was watching video instead of the mapping function: merely wearing a device with the capability is against the law.

A key imperative for all wearable device manufacturers is the need to foster app development: having a large range of apps will be core to the devices' utility⁵⁷. A challenge will be to get developers to create apps for a category of device with relatively few users. For smart glasses, apps would need to be built from scratch: existing apps cannot be used for glasses, which are fundamentally different from a smartphone or tablet. That said, early adopters tend to have a high propensity to purchase apps, and so may be a small but lucrative market⁵⁸.

As well as apps, another ancillary market will be in complementary devices. For example, one device combines with smart glasses to enable remote control of devices, such as television sets⁵⁹.

The capability of wearable devices is likely to improve continually, but expectations should be set carefully. There are fundamental constraints of battery technology, acceptable weight and the bulk of wearable devices. This means that some notions, such as full screen augmented reality built into a regular pair of sunglasses, priced at \$500 and with integrated 4G, is many years off – and may never be realized.

Trends such as the ageing of many nations' populations, widening cellular connectivity, and the move towards telemedicine (for more information, see the 2014 Prediction: eVisits: the 21st century housecall) may signal significant opportunities for wearables in the medium and long-term. Wearables may serve as sensors that are always in close proximity to the user, and could become a new communications platform providing larger images to those with dimming sight, or text messages to those with failing hearing. The combination of sensor, actuator and communicator may prove to be a compelling value proposition to patient, physician and insurance companies alike.

Middle East perspective

The Arab youth are well characterized as early technology adopters⁶⁰, with clear enthusiasm and interest in the new digital form factors represented by wearable technology.

However, as wearable devices come into the local market place, a range of issues and obstacles present themselves. The first, from a consumer perspective is economic. Most consumers are price sensitive and will certainly be restricted by their budgets, limiting their ability to adopt wearables in the short-term.

The local internet and telecommunications infrastructure in the region also needs to be more developed, in terms of internet speed, coverage and capacity, as it is in Western markets. All three technical factors need to be in place if users are to enjoy the full range of capabilities that wearable technologies can offer.

Another unknown is the reaction by society and government once the new technologies take hold. Will authorities in the Middle East fear or embrace the use of wearable devices? Will consumers be responsible with their new gadgets? Although camera and smart phones are prolific in the region today, they had been the source of much controversy stirred in the past. The fact that smart glasses enable pictures to be taken more seamlessly with the wink of an eye is one example that could reopen the debate, especially in a region traditionally more conservative and private than the rest of the world. Middle East authorities should be wary of this and work with other governments to establish a common regulatory framework and set of usage standards which are in the best interests of all.

Conversely, time and time again, the region is also well known to adopt methods, standards, tools and technologies once they are proven in the Western world, even if it is at a slower pace in many cases. With all six GCC governments leading strong mobile and e-government initiatives to improve their complete spectrum of government services, from utilities, transport, police, customs and municipalities to health services, bill payments, education, research and gathering citizen feedback⁶¹, the public sector could even be one of the primary drivers behind wearable adoption.

Deloitte in the Middle East

ME Regional office

Gefinor Center, Block D
Clemenceau Street
P.O. Box 113-5144
Beirut, Lebanon
Phone +961 (0) 1 748 444
Fax +961 (0) 1 748 999

Consulting

Regional office

Deloitte & Touche (M.E.)
Building 3, Emaar Square
Downtown Dubai
P.O. Box 4254 Dubai,
United Arab Emirates
Phone +971 (0) 4 376 8888
Fax +971 (0) 4 376 8899

Enterprise Risk Services

Regional office

Deloitte & Touche (M.E.)
Building 3, Emaar Square
Downtown Dubai
P.O. Box 4254 Dubai,
United Arab Emirates
Phone +971 (0) 4 376 8888
Fax +971 (0) 4 376 8899

Financial Advisory Services

Regional office

DIFC, Currency House
Building 1
P.O. Box 112865
Dubai, United Arab Emirates
Phone +971 (0) 4 506 4700
Fax +971 (0) 4 327 3637

Tax Services

Regional office

Currency House
Building 1
P.O. Box 282056
Dubai, United Arab Emirates
Phone +971 (0) 4 506 4700
Fax +971 (0) 4 327 3637

The Deloitte ME Islamic Finance Knowledge Center (IFKC)

Al Zamil Tower, Government Avenue,
Manama, Kingdom of Bahrain
Phone +973 (0) 1 721 4490 Ext 2018
Fax +973 (0) 1 721 4550

Bahrain

Manama
Al Zamil Tower
Government Avenue
P.O. Box 421
Manama, Kingdom of Bahrain
Phone +973 (0) 1 721 4490
Fax +973 (0) 1 721 4550

Egypt

Cairo
95 C, Merghany Street,
Heliopolis 11341, Cairo, Egypt
Phone +20 (0) 2 2290 3278
Fax +20 (0) 2 2290 3276

Alexandria

Madinet El Sayadla
Building No 10,
Smouha, Alexandria
Phone +20 (0) 3 426 4975
Fax +20 (0) 3 426 4975

Iraq

Erbil
Vital Village, No. 42
Erbil, Iraq
Phone +964 (0) 66 257 6200

Jordan

Amman
Jabal Amman,
190 Zahran Street
P.O. Box 248
Amman 11118, Jordan
Phone +962 (0) 6 550 2200
Fax +962 (0) 6 550 2210

Kuwait

Deloitte & Touche Al-Fahad Al-Wazzan & Co.
Kuwait City
Dar Al-Awadi Complex
Ahmed Al-Jaber Street, Sharq
P.O. Box 20174
Safat 13062, Kuwait
Phone +965 2240 8844
Fax +965 2240 8855

Lebanon

Beirut
Arabia House,
131 Phoenicia Street
P.O. Box 11-961
Riad El-Solh, Beirut
1107 2060 Lebanon
Phone +961 (0) 1 364 700
Fax +961 (0) 1 367 087

Libya

Tripoli
Tripoli Tower
P.O. Box 93645
Tripoli, Libya
Phone +218 (0) 92 370 1049

Oman

Muscat
MBD Area
Muscat International Center
P.O. Box 258, Ruwi
Postal Code 112
Sultanate of Oman
Phone +968 (0) 2481 7775
Fax +968 (0) 2481 5581

Palestinian Territories

Ramallah
Al Mashreq, Insurance Building
P.O. Box 447
Ramallah, Palestinian
Controlled Territories
Phone +970 (0) 2 295 4714
Fax +970 (0) 2 298 4703

Qatar

Doha
Al Ahli Bank Building
Sheikh Suhaim Bin Hamad Street
P.O. Box 431 Doha, Qatar
Phone +974 (0) 4434 1112
Fax +974 (0) 4442 2131

Saudi Arabia

Deloitte & Touche Bakr Abulkhair & Co.
Riyadh
Prince Turki Bin Abdullah
Al-Saud Street
Sulaimania Area
P.O. Box 213
Riyadh 11411, Saudi Arabia
Phone +966 1 282 8400
Fax +966 1 282 8428

Al Khobar

ABT Building, Al Khobar
P.O. Box 182
Dammam 31411, Saudi Arabia
Phone +966 (0) 3 887 3937
Fax +966 (0) 3 887 3931

Jeddah

Saudi Business Center
Madinah Road
P.O. Box 442
Jeddah 21411, Saudi Arabia
Phone +966 (0)1 2 657 2725
Fax +966 (0)1 2 657 2722

South Sudan

Juba
Deloitte Complex, Plot No.160,
Block 3K-South
2nd Class Thong Ping
Residential Area
P.O Box 511, Juba,
Republic of South Sudan
Phone +211 92 000 1024

Syria

Damascus
9 Fardos Street
P.O. Box 12487
Damascus, Syria
Phone +963 (0) 11 221 5990
Fax +963 (0) 11 222 1878

Rawda

38 Rawda Street
P.O. Box 12487
Damascus, Syria
Phone +963 (0) 11 331 1212
Fax +963 (0) 11 332 2304

United Arab Emirates

Abu Dhabi

Al Sila Tower
Sowwah Square
P.O. Box 990
Abu Dhabi,
United Arab Emirates
Phone +971 (0) 2 408 2424
Fax +971 (0) 2 408 2525

Dubai

Deloitte & Touche (M.E.)
Building 3, Emaar Square
Downtown Dubai
P.O. Box 4254
Dubai, United Arab Emirates
Phone +971(0) 4 376 8888
Fax +971(0) 4 376 8899

Fujairah

Al-Fujairah
Insurance Co. Building
P.O. Box 462
Fujairah, United Arab Emirates
Phone +971 (0) 9 222 2320
Fax +971 (0) 9 222 5202

Ras Al-Khaimah

Ras Al-Khaimah, Insurance
Building, Al-Nakheel,
Ras Al-Khaimah, UAE
P.O. Box 435
Ras Al-Khaimah,
United Arab Emirates
Phone +971 (0) 7 227 8892
Fax +971 (0) 6 574 1053

Sharjah

Corniche Plaza 2,
Al Buhairah Corniche
P.O. Box 5470
Sharjah, United Arab Emirates
Phone +971 (0) 6 574 1052
Fax +971 (0) 6 574 1053

Yemen

Sana'a

Sana'a Trade Center Eastern
Tower, Algeria Street
P.O. Box 15655
Sana'a, Yemen
Phone +967 (0) 1 448 374
Fax +967 (0) 1 448 378

For inquiries on Mauritania, please contact the ME regional office.

Quick links

deloitte.com/middleeast

Blog: deloittemiddleeastmatters.com

Twitter: @DeloitteME
@DeloitteMEjobs

Facebook: Deloitte Middle East

LinkedIn: Deloitte Middle East company profile

Endnotes

- 12 For a discussion on possible price points, see: Why Google Glass costs \$1,500 now and will likely be around \$299 later (Updated), Gigaom, 8 August 2013: <http://gigaom.com/2013/08/08/why-google-glass-costs-1500-now-and-will-likely-be-around-299-later/>
- 13 We are neither the most bearish or the most bullish of commentators on the market. There is a wide range of perspectives on market sizing for 2014 and beyond. For example, see: Smart Glasses and Other Wearable Devices to be worth over \$1.5bn by 2014, finds Juniper, Juniper Research, 31 October 2012: <http://www.juniperresearch.com/viewpressrelease.php?pr=347> ; Smartwatch Market Forecast To Reach 15 Million in 2014, Forbes, 27 September 2013: <http://www.forbes.com/sites/michaelwolf/2013/09/27/smartwatch-market-forecast-to-reach-15-million-in-2014/>; Over 5 million smart watches to ship in 2014, Canalys, 16 July 2013: <http://www.canalys.com/newsroom/over-5-million-smart-watches-ship-2014/>; Our Forecast For Smartwatches — A \$9 Billion Market In Five Years, Business Insider, 30 August 2013: <http://www.businessinsider.com/the-smartwatch-market-grows-to-9-billion-2013-8/>; Google Glass paves the way, IDG Business Media GmbH, 22 October 2013: <http://www.computerwoche.de/a/google-glass-bereitet-den-weg,1237959>
- 14 For a discussion on initial reactions to the iPad, see: Steve Jobs was ‘annoyed and depressed’ over initial reaction to iPad launch, Apple Insider, 21 October 2011: http://appleinsider.com/articles/11/10/21/steve_jobs_was_annoyed_and_depressed_over_initial_reaction_to_ipad_launch
- 15 There are multiple smart glasses products available. See: Five Face-Saving Alternatives To Google Glass, ReadWrite, 30 October 2013: <http://readwrite.com/2013/10/30/five-face-saving-alternatives-to-google-glass#awesm=~oq8bfN6q73MlzU>
- 16 There are devices in the shape of glasses, such as Oculus Rift, that provide a full, immersive screen for each eye, but do not enable the viewer to see anything in front of them. They are more akin to television screen or monitor replacements to be used in video games play. For more information see: Oculus VR, <http://www.oculusvr.com/>
- 17 The battery in Google’s Glass product is 2.1 Wh (570mAh). See: Thorough Google Glass teardown reveals 570mAh battery capacity, Engadget, June 2013: <http://www.engadget.com/2013/06/12/google-glass-teardown-battery-capacity/>
- 18 A record-breaking number of millionaires in the world, The Telegraph, 5 July 2013: <http://www.telegraph.co.uk/finance/personalfinance/expand-money/10158420/A-record-breaking-number-of-millionaires-in-the-percent-e-world.html>
- 19 For more information about navigation using smart glasses, see: Google Glass: Navigation Review, Phandroid, 9 May 2013: <http://phandroid.com/2013/05/09/google-glass-navigation-review/> ; Google Glass, inspiration for the creation of apps in a Spanish company, RTVE, 14 December 2013: <http://www.rtve.es/noticias/20131214/google-glass-fuente-inspiracion-para-creacion-apps-empresa-espanola/820640.shtml>
- 20 Blink to take pictures using the new Google Glass firmware?, Pocket-lint, 17 October 2013: <http://www.pocket-lint.com/news/124438-blink-to-take-pictures-using-the-new-google-glass-firmware/> ; Google Glass controlled by winking – code, hardware and official google info, Google Glass APPS, 22 April 2013: <http://glass-apps.org/google-glass-controlled-by-winking>
- 21 Recon Jet is the \$499 Google Glass alternative for athletes and exercisers, Gigaom, 27 June 2013: <http://gigaom.com/2013/06/27/recon-jet-is-the-499-google-glass-alternative-for-athletes-and-exercisers/>
- 22 Gartner Says Smartglasses Will Bring Innovation to Workplace Efficiency, Gartner, 6 November 2013: <http://www.gartner.com/newsroom/id/2618415>
- 23 Breaking Google Glass Into Pieces: The Costs of Production and Likely Retail Price, NASDAQ, 23 August 2013: <http://www.nasdaq.com/article/breaking-google-glass-into-pieces-the-costs-of-production-and-likely-retail-price-cm269835>
- 24 Sticker shock: Why are glasses so expensive?, CBS News, 07 October 2013: <http://www.cbsnews.com/news/sticker-shock-why-are-glasses-so-expensive-07-10-2012/>
- 25 Middle East Smartphone Usage Trends, Arabian Gazette, 3 Oct 2013: <http://arabiangazette.com/middle-east-smartphone-usage-trends-infographic-2013100/>
- 26 Camera Phone History, GSM Server: <http://gsmserver.com/articles/cameraphone.php> ; Saudi Arabia to Overturn Ban on Camera Phones, Arab News, 17 Dec 2004: <http://www.arabnews.com/node/259698>
- 27 Google Glass now available in Dubai for US \$12,250, StuffMidEast, 20 Aug 2013: <http://stuffmideast.com/2013/08/20156795/google-glass-now-available-in-dubai-for-us12>
- 28 Based on reports that Google Glass’s developer version was sold on eBay for US \$5,000. See: Google Glass now available in Dubai for US \$12,250, StuffMidEast, 20 Aug 2013: <http://stuffmideast.com/2013/08/20156795/google-glass-now-available-in-dubai-for-us12>
- 29 World Wealth Report, Capgemini, 2013
- 30 IDC: Smartphone shipments to surpass 1 billion units in 2013, up 39.3% as average prices decline 12.8%, TheNextWeb, 26 Nov 2013: <http://thenextweb.com/insider/2013/11/26/idc-smartphone-shipments-surpass-1-billion-units>
- 31 Etisalat demos Google Glass with MasterCard to shop online, TBreak, 20 Oct 2013: <http://www.tbreak.ae/news/etisalat-demos-google-glass-mastercard-shop-online> ; ‘Google Glass’ comes to the UAE; device showcase at Gitex, Emirates247, 20 Oct 2013: <http://www.emirates247.com/supplements/gitex/google-glass-comes-to-the-uae-device-sho>
- 32 How Vice’s Tim Pool used Google Glass to cover Istanbul Protests, The Guardian, 30 Jul 2013: <http://www.theguardian.com/technology/2013/jul/30/google-glass-istanbul-protests-vice>
- 33 Philips: Innovation to boost healthcare in Saudi Arabia, Zawya, Nov 2013: http://www.zawya.com/story/Philips_Innovation_to_boost_healthcare_in_Saudi_Arabia-Z ; Google Glass in hospitals? Royal Philips, Accenture think so, Global IT Resources, 4 Oct 2013: <http://blog.globalitresources.com/post/2013/10/04/Google-Glas-in-hospitals-Royal-Philip> ; Google Glass Prototype enables surgeons to view vital signs continuously while operating, iMedicalApps, 23 Oct 2013: <http://www.imedicalapps.com/2013/10/google-glass-prototype-surgeons-vital-signs-operat>
- 34 Lebanese entrepreneur beats Google Glass with lightweight 3D glasses, Wamda, 20 Dec 2013: <http://www.wamda.com/2013/12/lebanese-entrepreneur-beats-out-google-glass-with-light>
- 35 How Important is the creation of local content for the Middle East region?, Regional Manager Gulf, Google: “Mobile search is becoming increasingly crucial”, Telecoms.com, 4 Mar 2013: <http://www.telecoms.com/112292/regional-manager-gulf-google-%E2%80%9Cmobile-search-is-becoming-increasingly-crucial%E2%80%9D/>
- 36 For a discussion on the need for smart watches and other wearable computers, see: Intel’s Anthropologist Genevieve Bell Questions the Smart Watch, MIT Technology Review, 17 September 2013: <http://www.technologyreview.com/news/519351/intels-anthropologist-genevieve-bell-questions-the-smart-watch/>

- 37 Pricey wearable fitness gadgets are the new lapsed gym memberships, *The Globe And Mail*, 28 October 2013: <http://www.theglobeandmail.com/technology/gadgets-and-gear/pricy-fitness-gadgets-are-the-new-lapsed-gym-memberships/article15116572/>
- 38 iPhone 5S sports new M7 processor to handle motion apps, *Ars Technica*, 10 September 2013: <http://arstechnica.com/apple/2013/09/iphone-5s-sports-new-iphone-m7-processor-to-handle-motion-apps/>
- 39 For a view on popular fitness apps, see: The 15 Best Fitness Apps, *PC Magazine*, 30 December 2011: <http://www.pcmag.com/slideshow/story/292474/the-15-best-fitness-apps/15> . Another fitness tracking application is Noom which has been downloaded on the Google Play Store between 5,000,000 – 10,000,000 times. See: Noom Weight Loss Coach, Google Play, 15 December 2013: <https://play.google.com/store/apps/details?id=com.wsl.noom&hl=en>
- 40 US Census Bureau ; EIU ; Deloitte Analysis, 2012
- 41 Physical activity in adults with and without diabetes: from the 'high-risk' approach to the 'population-based' approach of prevention, Abla Mehlo Sibai et al, *BMC Public Health*, 24 Oct 2013: <http://www.biomedcentral.com/1471-2458/13/1002> ; How fit are you? Mideast world's most physically inactive region, *Emirates247*, 25 Feb 2014: <http://www.emirates247.com/lifestyle/how-fit-are-you-mideast-world-s-most-physically-inactive-region-2014-02-25-1.539389>
- 42 For a demographic and health information on the GCC see: Demographic and health indicators in Gulf Cooperation Council nations with an emphasis on Qatar, *Academia.edu*, 6 Mar 2013: https://www.academia.edu/5881038/Demographic_and_health_indicators_in_Gulf_Cooperation_Council_nations_with_an_emphasis_on_Qatar ; How fit are you? Mideast world's most physically inactive region, *Emirates247*, 25 Feb 2014: <http://www.emirates247.com/lifestyle/how-fit-are-you-mideast-world-s-most-physically-inactive-region-2014-02-25-1.539389> ; GCC Secretariat General official website, 2014: <http://www.gcc-sg.org/eng/>
- 43 Popularity and Participation of Sports in the Middle East and North Africa, *SMG Insight*, 2011
- 44 Instabeat official website: <http://www.instabeat.me/about>
- 45 As of November 2013, Pebble, one of the most popular smart watches, had sold 190,000 units. See: With 190,000 Smartwatches Sold, Pebble Boosts iPhone Support, *All ThingsD*, 6 November 2013: <http://allthingsd.com/20131106/with-190000-smartwatches-sold-pebble-boosts-iphone-support/> . The overall market for smart watches is expected to reach 2.6 million in 2014. See: IHS News Flash: Fast Facts and Analysis of Today's Smartwatch Announcements, *IHS*, 4 September 2013, <http://press.ihs.com/press-release/design-supply-chain-media/ihs-news-flash-fast-facts-and-analysis-todays-smartwatch-ann>.
- 46 Pocket watches were first used in the 16th century; they were then superseded by wrist watches, which were used in the early 20th century, and which saw a significant uptake in the First World War. See: Pocket Watch, *Wikipedia*, 2013: http://en.wikipedia.org/wiki/Pocket_watch ; The History and Evolution of the Wristwatch..., *Quality Tyme*, January 2004: http://www.qualitytyme.net/pages/rolex_articles/history_of_wristwatch.html
- 47 Atomic clock precision could soon be used at home and work, *PHYS*, 5 August 2013: <http://phys.org/news/2013-08-atomic-clock-precision-home.html>
- 48 In a survey of UK respondents in 2010, 14 percent claimed to have no need for a watch. The proportion was double among 15-24 year olds. See: Is time running out for the wristwatch?, *BBC News Magazine*, 28 October 2010: <http://www.bbc.co.uk/news/magazine-11634105>
- 49 For a review on a range of smart watches, see: So Far, Smart Watches Are Pretty Dumb, *MIT Technology Review*, 15 October 2013: <http://www.technologyreview.com/review/520236/so-far-smart-watches-are-pretty-dumb/>
- 50 6 of the hottest smartwatches: fashion trend or smartphone alternative?, *Wamda*, 25 Nov 2013: <http://www.wamda.com/2013/11/wearable-smartwatches-trend-or-smartphone-alternative->
- 51 Wearables futures, *AnOther Mag*, 9 Dec 2013: http://www.anothermag.com/current/view/3239/Wearable_Futures ; 3 Ways to make wearable tech actually wearable, *Fast Co Design*, 15 Mar 2013: <http://www.fastcodesign.com/1672107/3-ways-to-make-wearable-tech-actually-wearable>
- 52 Smartwatches set to lose out to tablets, fitness bands this festive season, *Gartner*, 25 Nov 2013: <http://memeburn.com/2013/11/smatwatch-sales-set-to-take-second-place-to-tablets-fitness-bands-this-festive-season-gartner/> ; Latest Tech battlefield: Wearables: Smartphone giants want your body, *The Peninsula Qatar*, 26 Feb 2014: <http://thepeninsulaqatar.com/plus/cover-plus/273890/latest-tech-battlefield-wearables-smartphone-giants-want-your-body>
- 53 Mobiles and phablets the must-haves at Abu Dhabi's electronics show, *The National*, 25 Feb 2014: <http://www.thenational.ae/business/retail/mobiles-and-phablets-the-must-haves-at-abu-dhabis-electronics-show>
- 54 For example, see: Google Glass privacy questioned by six countries and the EU, *Infosecurity Magazine*, 19 June 2013: <http://www.infosecurity-magazine.com/view/33012/google-glass-privacy-questioned-by-six-countries-and-the-eu/> ; Congress grills Google on Glass privacy, company addresses facial recognition and privacy in fireside chat, *The Next Web*, 17 May 2013: <http://thenextweb.com/google/2013/05/17/us-congressman-joe-barton-and-other-lawmakers-express-concern-over-google-glass-alleging-violation-of-privacy/>
- 55 Privacy Fears with Google Glass are Overblown, *MIT Technology Review*, 4 March 2013: <http://www.technologyreview.com/view/512041/privacy-fears-with-google-glass-are-overblown/>
- 56 US woman denies Google Glass distracted her while driving, *The Telegraph*, 4 December 2013: <http://www.telegraph.co.uk/technology/google/10493254/US-woman-denies-Google-Glass-distracted-her-while-driving.html>
- 57 For a list of apps for smart glasses, see: Google Glass Application List, *Google glass apps*, 2013: <http://glass-apps.org/google-glass-application-list>
- 58 Why Smartwatches, TVs & Smart Home Could Be The Next Big Opportunity For Apps, *Forbes*, 3 October 2013: <http://www.forbes.com/sites/michaelwolf/2013/10/03/why-smartwatches-tvs-smart-home-could-be-the-next-big-opportunity-for-apps/>
- 59 For more information see: What is GlasSees?, *Electrical Engineering & Computer Science -Berkeley*, 2013: <http://www.eecs.berkeley.edu/~benzh/glass/#publication>
- 60 The region is characterized by a young population of early adopter. See: The Key to App store success? In the Middle East and Africa it's all about word of mouth, 20 January 2011: <http://thenextweb.com/me/2011/01/20/the-key-to-app-store-success-in-the-middle-east-and-africa-its-all-about-word-of-mouth/>
- 61 GCC to lead global race to deliver government services on mobile phones, *AME Info*, 25 Feb 2014: <http://www.ameinfo.com/blog/telecoms/gcc-lead-global-race-deliver-government-services-mobile-phones/> ; GCC governments ramp up e-government services, *Arabian Gazette*, 3 Oct 2013: <http://arabiangazette.com/gcc-governments-ramp-egovernment-services-20131003/>

Researched and written by:

Paul Lee

Director, Head of Global TMT Research
Deloitte Touche Tohmatsu Limited
+44 (0) 20 7303 0197
paullee@deloitte.co.uk

Duncan Stewart

Director of TMT Research
Canada
+1 416 864 3536
dunstewart@deloitte.ca

Adil Parvez

Consultant, TMT
Deloitte & Touche (M.E.)
+971 (0) 4 376 8601
aparvez@deloitte.com

Contributors:

Emmanuel Durou

Director, TMT
Deloitte & Touche (M.E.)
edurou@deloitte.com

Gareth Pereira

Senior Manager, TMT
Deloitte & Touche (M.E.)
garpereira@deloitte.com

Caitlyn Chetty

Business Analyst, TMT
Deloitte & Touche (M.E.)
cchetty@deloitte.com

Marketing contacts:

Amanda Goldstein

TMT Marketing Leader
Deloitte Touche Tohmatsu Limited
+1 212 436 5203
agoldstein@deloitte.com

Karen Hogger

EMEA TMT Marketing Manager
Deloitte Touche Tohmatsu Limited
+44 (0) 20 7007 5405
khogger@deloitte.co.uk

Patrick Mallouh

Supervisor, ME Brand & Communications
Deloitte & Touche (M.E.)
+961 1 748 444
pmallouh@deloitte.com

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or their related entities (collectively, the "Deloitte network") is, by means of this communication, rendering professional advice or services. No entity in the Deloitte network shall be responsible for any loss whatsoever sustained by any person who relies on this communication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. Please see www.deloitte.com/about for a more detailed description of DTTL and its member firms.

Deloitte provides audit, tax, consulting, and financial advisory services to public and private clients spanning multiple industries. With a globally connected network of member firms in more than 150 countries and territories, Deloitte brings world-class capabilities and high-quality service to clients, delivering the insights they need to address their most complex business challenges. Deloitte's more than 200,000 professionals are committed to becoming the standard of excellence.

About Deloitte & Touche (M.E.)

Deloitte & Touche (M.E.) is a member firm of Deloitte Touche Tohmatsu Limited (DTTL) and is the first Arab professional services firm established in the Middle East region with uninterrupted presence since 1926.

Deloitte is among the region's leading professional services firms, providing audit, tax, consulting, and financial advisory services through 26 offices in 15 countries with more than 3,000 partners, directors and staff. It is a Tier 1 Tax advisor in the GCC region since 2010 (according to the International Tax Review World Tax Rankings). It has received numerous awards in the last few years which include Best Employer in the Middle East, best consulting firm, and the Middle East Training & Development Excellence Award by the Institute of Chartered Accountants in England and Wales (ICAEW).