Deloitte.

# One billion smartphone upgrades

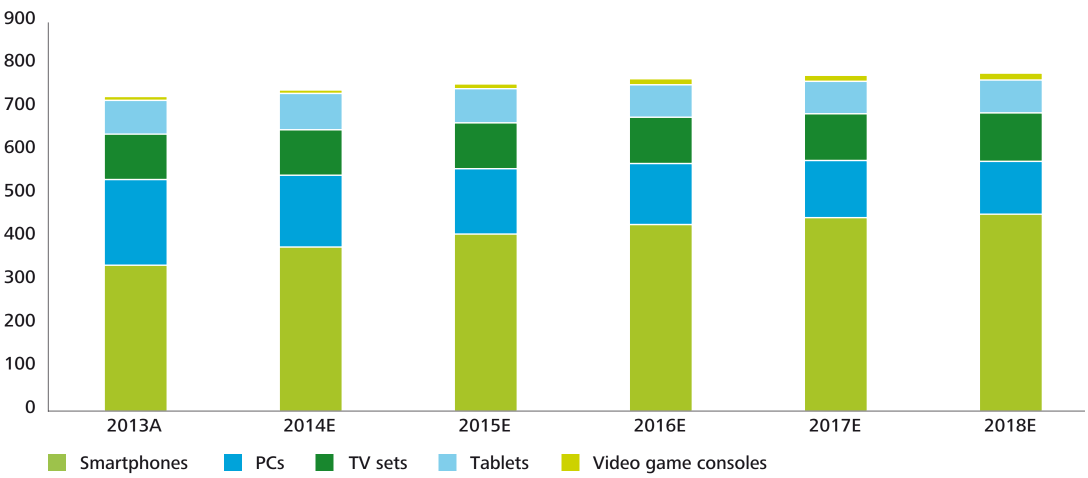
Deloitte predicts that one billion smartphones will be purchased as upgrades for the first time in 2015, generating over $300 billion in sales.[276] We expect smartphone upgrade volumes to continue increasing through 2018, and possibly beyond.

The quantity of smartphones bought as upgrades is unparalleled among consumer electronics devices. In 2015 smartphone sales will be greater in units and revenues than the PC, television, tablet and games console sectors combined (see Figures 3 and 4).[277] The smartphone's share of units and revenue should continue growing through 2018.

The smartphone's predominance is driven mainly by upgrades. The smartphone base is forecast to increase from 1.8 billion in 2014 to 2.2 billion this year.[278] We expect smartphone sales of about 1.4 billion smartphones in 2015, which implies that just over a billion (about three-quarters) will be upgrades. According to Deloitte's research, undertaken in May-June 2014, about seven in ten smartphone owners in 14 developed markets had upgraded their phone in the previous 18 months.[279] This is more frequent than for any other consumer electronics device, which may surprise in view of the fact that in 2015 most smartphone owners are likely to spend more time looking at TV screens, and information workers and students may spend more time looking at PC screens.[280]

## One billion smartphones will be purchased as upgrades for the first time in 2015, generating over $300 billion in sales.

**Figure 3. Combined global sales revenue of PCs, smartphones, tablets, TVs and video game consoles, 2013-2018**




Source: Deloitte, 2014, based on multiple sources

276. The replacement market represents approximately three-quarters of the overall smartphone forecast for 2015. The estimated replacement volume is based on Deloitte consumer surveys and publicly-available information. Sources used include, but are not restricted to: The Mobile Economy 2014 (Page 17), GSMA, 2014: http://www.gsmamobileeconomy.com/GSMA_ME_Report_2014_R2_WEB.pdf; Worldwide smartphone usage to grow 25% in 2014 , eMarketer, 11 June 2014: http://www.emarketer.com/Article/Worldwide-Smartphone-Usage-Grow-25-2014/1010920; Share of mobile phone users that use a smartphone in China** from 2010 to 2017, Statista, 2014: http://www.statista.com/statistics/257045/smartphone-user-penetration-in-china/;

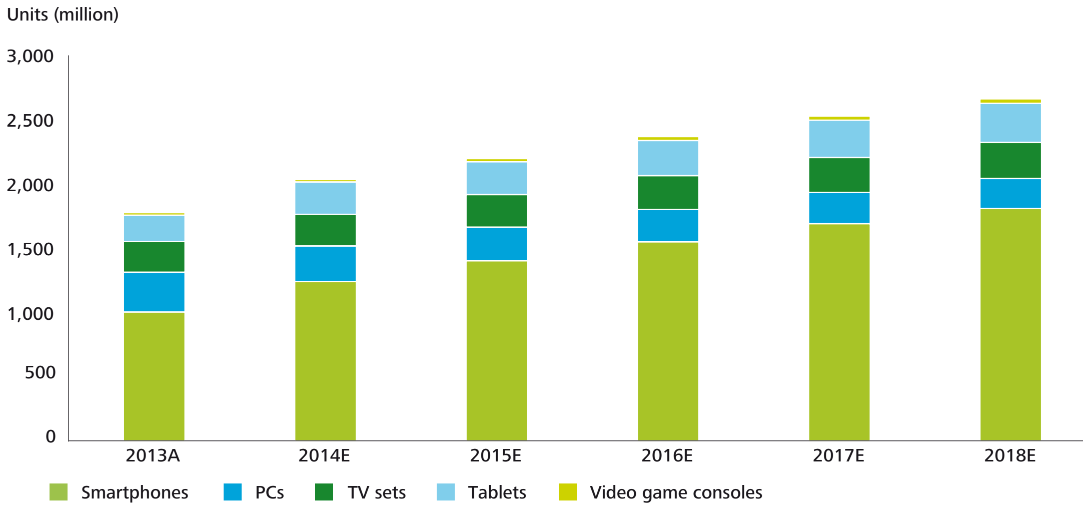
277. The 2013-2018 estimates are a combination of published industry forecasts and Deloitte estimates for actual and forecast numbers. Sources used include, but are not restricted to, IDC, Gartner, Canalys, IHS.

278. The Mobile Economy 2014 (Page 17), GSMA, 2014: http://www.gsmamobileeconomy.com/GSMA_ME_Report_2014_R2_WEB.pdf

279. The question asked was: "When did you buy or get given your current phone?". The base for this question was smartphone owners: Australia 1,525; Finland 652; France 1,309; Germany 1,364; Italy 1,515; Japan 887; Netherlands 1,423; Norway 875; Singapore 1,773; South Korea 1,759; Spain 1,703; Sweden 1,641; UK 2,802; US 1,167. This survey is part of the Global Mobile Consumer Survey, a study conducted online by Ipsos MORI on behalf of Deloitte between May-July 2014

280. For more information on time spent with devices in the US, see: The total audience report, Nielsen, 3 December 2014: http://www.nielsen.com/us/en/insights/reports/2014/the-total-audience-report.html

**Figure 4. Combined global sales units of PCs, smartphones, tablets, TVs and video game consoles, 2013-2018**




Source: Deloitte, 2014, based on various industry sources

However the smartphone is the most personal of consumer electronics devices: the most constant companion, the most personal of choices, the most customized and reflective of the owners, the least likely to be shared with other users, and the most frequently looked at.[281]

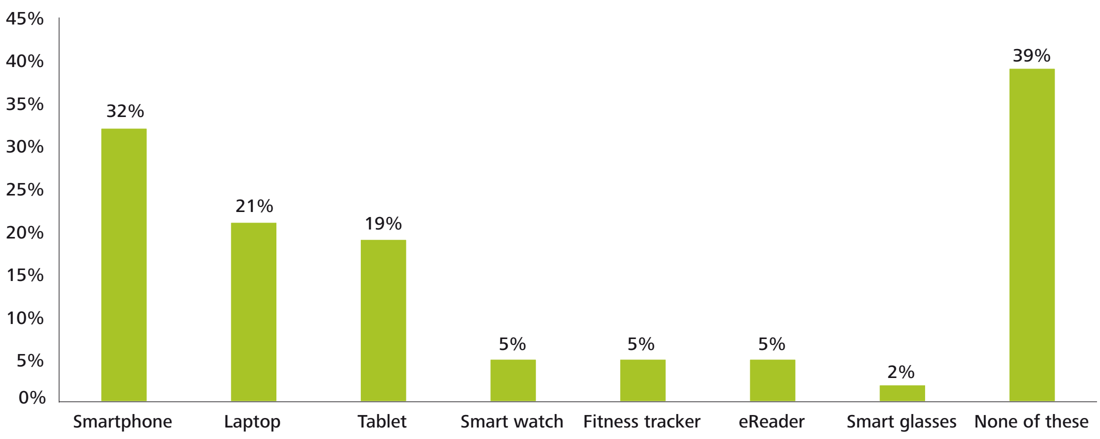
Indeed, our research found that respondents in many countries chose the smartphone as the device they were most likely to purchase in the next 12 months, with a third expecting to buy a smartphone, compared to 21 percent for laptops and 19 percent for tablets (see Figure 5).

The huge production volumes of smartphones manufactured also make this the most competitive market among devices, undergoing the most substantive improvement on a year-by-year basis. Our view is that the device replacement cycle for smartphones is the shortest relative to other devices (see Figure 6).

281. According to Deloitte's Global Mobile Consumer Survey, respondents in 14 developed countries look at their phone, on average, 37 times a day.

**Figure 5. Device purchase intent in the next 12 months**

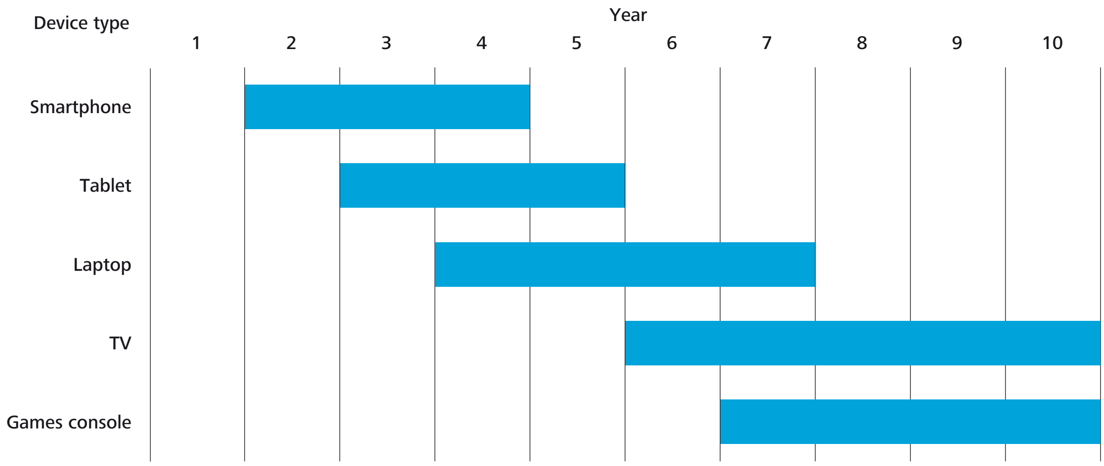
Q: Which, if any, of the following devices are you likely to buy in the next 12 months?




Source: Deloitte Global Mobile Consumer Survey, Developed countries, May - July 2014

Weighted base: All respondents: Australia 2,015; Finland, 1,000; France 2,000; Germany 2,000; Italy 2,000; Japan 2,000; Netherlands 2,000; Norway 1,000; Singapore 2,000; South Korea 2,000; Spain 2,000; Sweden 2,000; UK 4,000; US 2,001

**Figure 6. Device replacement cycle, by type of devices (years)**




Source: Deloitte, 2014

## There is a wide spread of motivations, practical and emotional, which will drive the billion upgrades we anticipate for 2015 and the 1.15 billion for 2016.

Some may question the need for users to swap one small rectangular and expensive slab for another.[282] Arguably there is little perceptible benefit in upgrading from a quad-core to an octa-core device;[283] 3G is good enough and 4G unnecessary; there is little noticeable difference between a 12 MP (megapixel) and 20MP photo, or between a high definition and 4K screen;[284] wide-angle lenses that take better selfies aren't needed; and square corners are not superior to rounded ones (or vice versa).

Assessing the smartphone upgrade market from a purely technical perspective, it might be concluded that most existing owners do not 'need' a new device. But this assessment is too narrow; there is a wide spread of motivations, practical and emotional, which will drive the billion upgrades we anticipate for 2015 and the 1.15 billion for 2016.

In the near term smartphones will offer both an ever-wider range of functionality (such as a fingerprint sensor) and enhancement in existing functions (such as a better camera).

At first glance, fingerprint readers may appear superfluous. They enable us to do things (such as unlock phones, authenticate an in-app payment, gain access to enterprise email, or authorize an in-store contactless purchase) that we can already do with passwords and PINs.[285]

But fingerprint readers make each step faster and slicker: a single touch of a reader is, for some users, more elegant than multiple taps of a touchscreen. This is also where one-upmanship comes in, and envy may drive the decision to upgrade. A fingerprint reader enables people do things slightly differently from others whose phones lack a reader, as well as being superior from a practical perspective.[286]

The camera is a core functionality of smartphones, as well as the feature phones that preceded them. We expect that a common (but rarely ever sole) reason for upgrading a phone will be to take *and* share better photographs, from anywhere in the world.[287]

Every year the photographic capability of smartphones improves. 4G enables faster sharing;[288] better sensors enable improved low-light photos; wider lens apertures let in more light, making possible the shooting of slow-motion video. Faster processors and micro-actuators reduce the blur from camera shake. The latest flashes offer a more natural light, lessening the chance of 'bleached' faces, or washed-out balsamic glaze on the second course of a fancy meal. Filters change the mood.

All these enhancements result in photos more worthy of sharing; and faster connectivity speeds enable and encourage us to distribute them more frequently and in higher resolution.[289] A panoramic photo is about eight megabytes in size, and takes mere seconds to share at 4G speeds. A generation back, holiday snaps could only be inflicted on friends and family post-vacation.

282. Why you shouldn't fall for the upgrade trap phone makers set for you, Digital Trends, 30 July 2012: http://www.digitaltrends.com/mobile/why-you-shouldnt-fall-for-the-upgrade-trap-phone-makers-set-for-you/

283. As of December 2014, there were just a few octa-core phones on the market. For a review of some of the models, see: 10 of the best octa-core smartphones available now, Phone arena, 17 August 2014: http://www.phonearena.com/news/10-of-the-best-octa-core-smartphones-available-now_id59431

284. Also known as Ultra High Definition or 2160p

285. Fingerprint readers are likely to become more common in phones in 2015. See: Synaptics: Get ready for more smartphones with fingerprint readers, CNet, 31 August 2014: http://www.cnet.com/uk/news/synaptics-ceo-get-ready-for-more-smartphones-with-fingerprint-readers/

286. With in-store payments, a further practical benefit is that the payment should be more secure (see Prediction: Contactless mobile payments (finally) gain momentum

287. The combination of cameras and phones is, at first glance, counter-logical. The smartphone is the most compromised of the three main digital camera form factors. (The other two are the digital SLR and the compact). It has the smallest optical lens, usually no optical zoom, the smallest sensor, the weakest flash (if one at all) and the least user control. It takes the worst photos of all the form factors, yet is the most popular digital camera form factor, despite its many compromises. While the smartphone is technically inferior, it has two key strengths: proximity and connectivity. Smartphones are always with us and enable spontaneous sharing.

288. There are multiple ways in which phone cameras (lenses, sensors and software) can be increased. See for example: Camera megapixels: Why more isn't always better (Smartphones Unlocked), CNet, 6 May 2012: http://www.cnet.com/news/camera-megapixels-why-more-isnt-always-better-smartphones-unlocked/; Best camera phones of 2014, CNet, 26 November 2014: http://www.cnet.com/topics/phones/best-phones/camera/; Understanding Camera Optics & Smartphone Camera Trends, A Presentation by Brian Klug, AnandTech, 22 February 2013: http://www.anandtech.com/show/6777/understanding-camera-optics-smartphone-camera-trends; iPhone 6 Already A Fuzzy Memory? Putting A Possible Huge Camera Upgrade For Apple's Next Smartphone Into Focus, Forbes, 19 November 2014: http://www.forbes.com/sites/markrogowsky/2014/11/19/iphone-6-already-a-fuzzy-memory-putting-a-possible-huge-camera-upgrade-for-apples-next-smartphone-into-focus/

289. A photo taken with a 13 megapixel camera generates a 5 megabyte photo: see: Understanding Camera Optics & Smartphone Camera Trends, A Presentation by Brian Klug, AnandTech, 22 February 2013: http://www.anandtech.com/show/6777/understanding-camera-optics-smartphone-camera-trends/6

Better cameras may trigger upgrades to get more memory. Although this may seem logical, it is arguably irrational, if we exhaust memory only because we are averse to deleting un-needed snaps. A 64-gigabyte (GB) phone can store over 30,000 high definition photos, few which will be looked at again.

Some of the practical motivations for upgrading may not be picked up by standard, questionnaire-based market research. A common reason for upgrading in 2015 will be to get a larger screen, ostensibly to browse more easily, or watch more video. Few might admit however that the principal benefit of a larger screen is to avoid the need to put on reading glasses.[290]

This year, a common complaint among smartphone users will be that their device 'feels slow'. This will be fact as well as perception: smartphones used frequently for data applications tend to last about four years before becoming too slow to operate.[291] Phone hardware is locked down and generally can't be upgraded; but the software used on the device, including the operating system (OS), is upgraded at least annually. New software, be it an OS or an app, is designed for the majority of phones likely to use it and pay for it. Every year, the newest smartphones incorporate faster processors and more random access memory (RAM); so over time, as software becomes more complex, the processor and memory in a device increasingly struggle to undertake existing and new functions.

Upgrading a smartphone on the basis of looks may seem superficial, but this decision can also be rationalized. Better-quality materials – whether metals, plastics or even bamboo – are now being used, and these can make devices more durable as well as more eye-catching. New screens tend to be stronger, and also to have better viewing angles, as well as superior visibility in sunlight.[292] Many smartphone models are now dust – and water-resistant.[293]

Peer pressure is likely to be a factor in many decisions to upgrade. It's not just the envy invoked from seeing friends and family with pristine new devices, replete with brand new functionality; it's also the news flow, with some new smartphone launches dominating the tech sections of websites and also national news bulletins.

Added to that is pestering from children, eager for their parents to upgrade so as to get an upgraded hand-me-down smartphone for themselves.

In many cases, the timing of an upgrade will be linked to the expiry of a contract, a price reduction, or a sales promotion. But the decision to actually upgrade a phone, and the choice of which model to upgrade to, will likely have been driven by many of the aforementioned factors, as well as many other impulses, summarized in Figure 7. Vendors and carriers should be aware of them all.

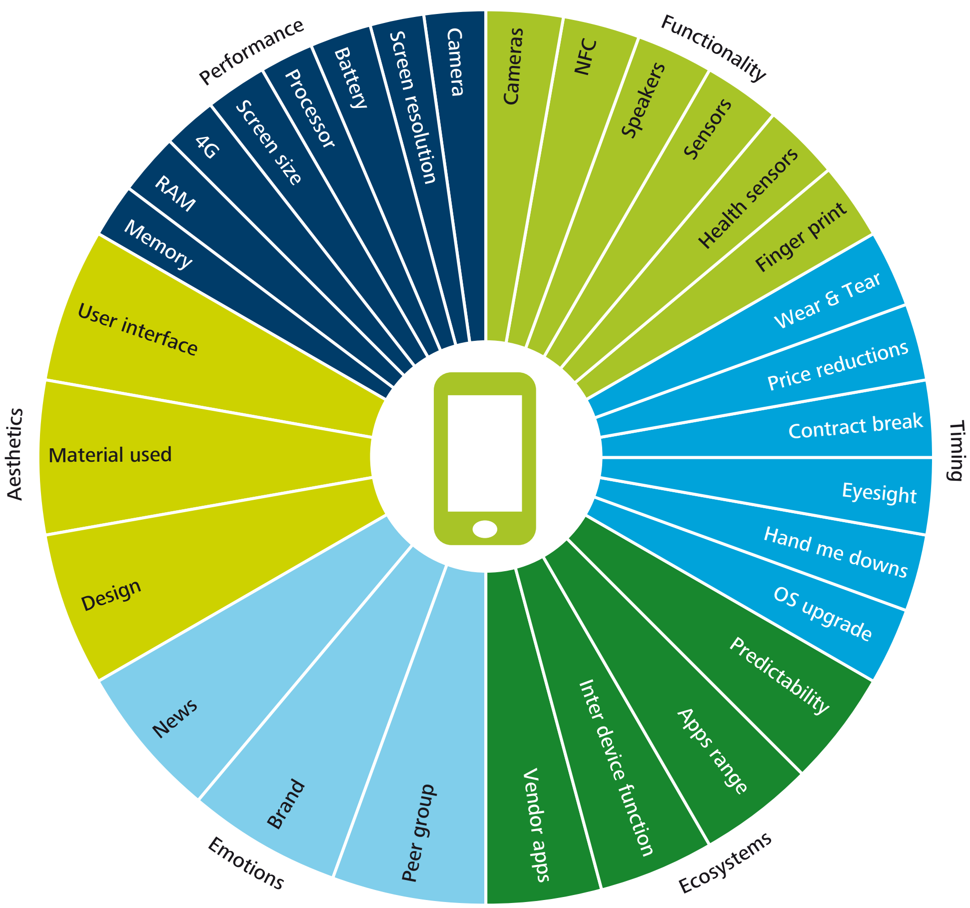
290. Bigger IPhones Entice Seniors Seeking More Screen Area, Bloomberg, 10 September 2014: http://www.bloomberg.com/news/2014-09-09/bigger-iphones-entice-seniors-seeking-more-screen-area.html

291. For a discussion on the natural life cycle of devices, see: Why your iPhone or iPad feels like it's getting slower, ZDNet, 2 September 2014: http://www.zdnet.com/article/why-your-iphone-or-ipad-feels-like-its-getting-slower/

292. For discussion on screen quality, see: These smartphones have the best screens you can find, CNet, 25 September 2012: http://www.cnet.com/news/smartphones-with-killer-screens-roundup/

293. Some smartphone models have achieved IP67/68 certification, that is dust-proof and capable of for immersion up to one meter for 30 minutes: IP Code, Wikipedia, as accessed on 12 December 2014: http://en.wikipedia.org/wiki/IP_Code

**Figure 7. Drivers for phone upgrade**




Source: Deloitte, 2014

294. Camera megapixels: Why more isn't always better (Smartphones Unlocked), CNet, 6 May 2012: http://www.cnet.com/news/camera-megapixels-why-more-isnt-always-better-smartphones-unlocked/

**Bottom line**

The smartphone is the most successful consumer device ever: the landmark of a billion upgrades in a single year is testament to this.

Just being in the smartphone industry, however, is no guarantee of success, and the market is becoming increasingly competitive. The challenges for smartphone vendors: retaining loyalty, taking share in a maturing market, maintaining margin, and determining which functionality their customers want at each point in time, are likely to get steadily more acute over time.

In addition to optimizing hardware, vendors will need to increment the range of intangible factors used to enhance their devices' appeal. These range from the availability of technical support, to the ease of transferring data between the old and new devices and from the perceived security of client data to the caliber of the accompanying app store.

Vendors need to ensure that all functionality addresses current needs and anticipates latent ones. Incorporating superfluous functionality, or technology that is hard to use, will diminish profitability.

Offering cameras with ever-higher resolution may offer quality increments that few owners would be able to discern;[294] whereas incorporating better low-light capability may have wider appeal, as the improvement would be more immediately noticeable.

Smartphone vendors should continue to work closely with carriers. In markets with subsidies and two-year contracts, upgrades have both advantages and disadvantages for carriers. They need to fund the upfront device cost, or offer the ability to pay in installments, but the upgrade also gives them a chance to lock in a customer, reduce churn and perhaps even sell them upgraded service levels. In markets with no subsidies, the vendors need to optimize pricing and features in order to appeal to retailers and consumers.

For purchases of the few hundred million smartphones by enterprises, the selection process can be more complex than for consumers. CIOs are unlikely to care too much about the need for a smartphone optimized for sharing holiday snaps; but the HR department may want to offer such devices to attract and retain staff. In some cases, phones that are more resilient and waterproof may be perfect for field workers; and for companies needing additional security, fingerprint readers and NFC chips may be of particular interest.

Smartphone vendors should continue to work closely with carriers. In markets with subsidies and two-year contracts, upgrades have both advantages and disadvantages for carriers.



Designed and produced by The Creative Studio at Deloitte, London. 39856A