# Predictions: Tech Trends – part 2 – 2016

**RFG Perspective:** Mobile first initiatives will take on new meanings in 2016 as corporations were stung by initiatives that failed to limited scope, poor security, and long development times due to both app bloat and resource contstraints. Smartphones and PCs will be where most enterprises focus both from a development and acquisition perspective; however, interest in Internet of Things (IoT) adoption will begin to take shape in earnest. Previous failures in security will be brought to the fore as enterprises retool their investments and security policies will become more universal rather than having separate requirements based on application or platform. Smartphone device acquisition policies will also need to be rethought from this perspective and the advancements and differentiation among similar device types will flatten. Apple will gain ground in the smartphone and PC spaces despite price premiums thanks its maturing ecosystem and advantageous support paradigms.

The mobile device market is will rapidly mature in 2016 as consumers in developed nations are overwhelmingly satisfied with existing hardware capabilities and tired of constant upgrades. Simultaneously, 2016 will mark the end of consumers acquiring subsidized phones in exchange for lengthy carrier contract as various financing schemes from carriers, phone vendors, and others aim to meld flexibility and early upgrade paths into the mix. Efforts paid to mobile ecosystem development will feverishly increase in the coming year. Shortages of application developers have been and will continue to challenge many enterprise development efforts and requiring corporations to rethink both what and how apps are built. Enterprise views on mobile security requirements are rapidly changing and enterprises will invest significantly in upgrading device-side, network, and backend upgrades to attain corporate-grade protection across the attack vectors. For most, these improvements will require multiple years and will be complicated by the rapid rise of Internet of Things (IoT) initiatives.

**Smartphones and PCs**

As in 2015, smartphones and PCs will again be the most acquired and utilized user devices. PC sales will continue to gain steam in 2016 as corporations continue to replace outdated equipment and standardize on the Microsoft Windows 10 operating system. Microsoft's heavy-handed push for users to abandon Windows 7 and all its "dangers" towards the automatically updating and continuously tattling Windows 10 will continue despite pushback and outrage. The company will tread somewhat lighter in its approach this year as privacy experts continue to slam Microsoft's approach and enterprise administrators work to align Windows 10 with longstanding corporate security policies. Apple's MacBook line is likely to see some of the biggest growth numbers this year as consumers and enterprise alike flock to the Mac platform. For many, the use of cloud-based applications, operating system simplicity, and Apple's lower-support costs justify the higher acquisition costs.

Despite some delay in mobile app capability, a majority of solutions are available in mobile form providing most of the core functionality required for users looking for rapid lookup, notification, and update capabilities. As the device and app market mature; however, enterprises are feverishly looking for new means of attaining and maintaining mobile user attention while vendors seek new means of enticing upgrades. Luckily for

vendors, hardware breakages and mobile OS slowdowns remain a constant and will help propel sales of new devices along with upgrades in size, speed, functionality, and security.

Maturity has truly set in for smarpthones as virtually all devices have at least acceptable performance. As hardware manufacturers will have a tough year distinguishing products in the crowded field, established leaders Apple, Inc. and Google, Inc.'s Android will increase their established dominance as field has all-but-settled on the two-players. Pricing will become increasingly competitive in the Android space as plethora of similarly equipped and comparably capable devices will increasingly look the same. In the U.S., Samsung will retain its the preeminent spot as "go to" device at the high end. Increased competition from somewhat alternative brands like Google's own Nexus brand, OnePlus, and Xiaomi offer compelling, less expensive alternatives that will both push overall pricing down and gain market share. Apple will offer less expensive alternatives to its existing phone line by adding (back) smaller-screened devices to its lineup but will face far less pricing pressure than its competitors.

**Phone Payment Strategies and Wireless Carrier Pricing**

The biggest impact in the smartphone space is the outright death of the two-year smartphone contract. This, along with the inclusion of multiple-frequency radios, will ease the burdens of carrier portability. An outright plethora of carriers, manufacturers, and other lending institutions will seize on this worldwide trend by offering financing tailored to virtually any device and loan period with attractive lending rates. Early upgrade options will be both allowed and encouraged as rapid replacement improves residual value and the lenders' profitability. While the top 50 percent of the buying market in developed nations will seize upon these rental opportunities, the bottom 50 percent will appreciate the ability to buy little used, slightly older, high-end equipment at heavily discounted rates.

The elimination of two-year contracts and increased phone portability is encouraging price competitiveness among wireless carriers. All carriers will cut pricing and offer increased value propositions with multi-device rates with Sprint and T-Mobile leading the way in the U.S. AT&T and Verizon will rely more on the strength of their networks and continue to have higher pricing. Enterprises may wish to consider, if only as a negotiation tactic, one or more of the hundreds of mobile virtual network operators (MVNOs) that use major carrier networks and their own sales, marketing, and support arms to provide cellular service. MVNOs typically offer discounting that may be up to 50 percent off premier brand pricing though support and network priority are typically compromised in some fashion.

**Wearables Up; IoT Everywhere**

Apple proved the viability of the smartwatches this year as evidenced by sales far outpacing all of its competition and the five-percent decline in high-end, Swiss watches. Though far from perfect, the Apple watch has proven that wearables are both desirable and that watch apps that provide limited lookup, notification, loyalty, and reward

capabilities are desirable. The applicability and desirability of watch apps differs across industry verticals and enterprises will expend energy – particularly in banking, health, hospitality, and retail – to extend value from the smartphone to the smartwatch. Corporations should expect to make numerous mistakes along the way but should remember there's significant value in being both early to market and taking an Agile approach incorporating iterative development, customer feedback, and usage analytics. As smartwatches have and will continue to become increasingly affordable, the market for fitness-only bands will decline accordingly.

Most notable will be the rise in IoT devices this year along with all the hardware, software, cloud services, and storage necessary to support it. Vendors will build awareness and addressability into myriad devices and correspondingly provide enterprises with a mountain of new data streams for mining. Not all data will be of value, so enterprises will need to carefully assess means by which meaningful patterns can be coagulated and discerned using numerous analytical capabilities across a wide range of IoT, legacy, and third-party data streams. Cloud solutions aplenty will arise to help corporations gather and make sense of this information; however, enterprises will not have the bandwidth or necessity to effectively slice-and-dice it all. Acknowledging the big difference between data and actionable information will be key along with the accompanying burden on both storage and security. IoT can be a boon to enterprises but poor planning that fails to balance enterprise-wide needs for actionability, reusability, and security will doom many initiatives and later require significant rearchitecture.

**Security**

Despite numerous and continuous warnings, many underestimated the security concerns neglected security concerns raised by mobile devices. Bring your own device (BYOD) strategies have frequently been fraught with peril as encryption, password, policy, and enforcement practices were often treated as an "add-on" to enterprise security policies instead of subject to the same scrutiny. Particularly in light of the onslaught of IoT initiatives bound for 2016 and 2015's security failures, inadequacies of years past must quickly catch up to the needs of both today and tomorrow.

Enterprises will need to take a hard look at device selection, acquisition, ownership, and associated costs this to determine which smartphone strategies make the most sense. The first step will be to limit the types of devices the corporations allows connecting to enterprise systems to ease management. Mobile management and enforcement technologies will need to integrate far more seamlessly with other enterprise security software to simplify and universally apply policies and updates. Encryption everywhere – device, network, and storage – must be the new norm but cost and enforcement will plague implementations.

Mobile solution expansion began to take the lead in reshaping enterprise security in 2015 but efforts will need to take significant steps forward in 2016 to come close to addressing exponentially complex concerns. CIOs must work with business, legal, and executive stakeholders immediately to fully uncover holes in policy and procedure, assess risks, and

determine appropriate action. Security funding has increased for some but not all enterprises, and as such, an inclusive, high-level task force must be established with the means of fully uncovering the true state of affairs. Holistic reviews can then be leveraged for funding increases; however, the long play here is to ensure security policies are documented, known, and implemented universally in all new and upgraded initiatives. Efforts should incorporate enterprise security policies from their inception and departments should be held responsible for non-compliance.

**Mobile App Development**

The definition of an application has always been subject to individual interpretation and comes again under the microscope in 2016. Last year saw many enterprises adopt mobile app development strategy approaches that proved ineffective due to shortages in mobile development talent and often too-lengthy development times. Moreover, many companies lengthened development times by trying to wedge too many functions into their apps, many of which proved unhelpful to users and created bloat that slowed down usability. Enterprises this year will need to rethink their approaches and get back to basics. Apps should be developed from a user value point of view focusing on notifications, lookups, and updates and pack the most bang-for-the-buck. An Agile, iterative methodology leveraging user feedback and analytics will be key to maximizing value.

**RFG POV:** Mobile-first initiatives will continue to dominate the landscape in 2016 but will increasingly need to incorporate business value, use cases, and customer loyalty strategies. Security can no longer be an afterthought for mobile nor the multitude of IoT strategies corporations will embark upon in 2016 and costs will rise exponentially for those that deny this immutable fact. The use of cloud solutions to overcome internal shortfalls will be attractive thanks to overreaching vendor hype, but enterprises must effectively and holistically determine whether needs are best met through internal or external resources. Accountability and compliance to prescribed outcomes using established metrics will be essential to success, as will an enterprise-view to all aspects of development, support, security, and enforcement. IoT will take center stage along with security compliance this year and enterprises will rapidly see that desired initiatives are fast outstripped by available resources. The complexities ahead pose both great reward and perhaps even greater risk thus necessitating a more metered, measured, enforceable approach to technology adoption.

*Additional relevant research is available at www.rfgonline.com. Interested readers should contact RFG Client Services to arrange further discussion or interview with Mr. Adam Braunstein.*


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