



United States PC, Tablet, & Mobile Phone Market Size and Forecast, June 2013

End-User Sales

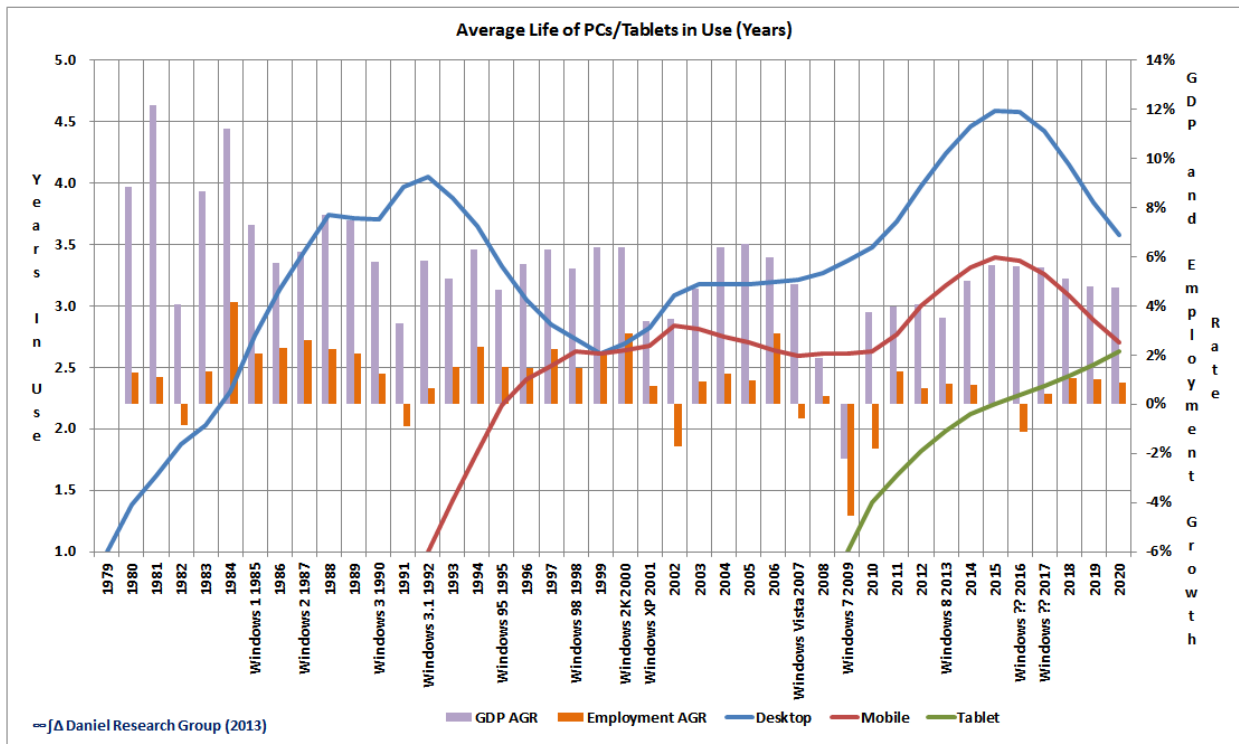
	Units Purchased (M)			Annual Growth Rate	CAGR
	2012	2013	2017	2013	2012 to 2017
Desktop PCs	14.6	11.4	9.2	-22.0%	-8.8%
Mobile PCs	52.0	47.2	39.0	-9.2%	-5.6%
Traditional PCS	66.5	58.5	48.2	-12.0%	-6.2%
Tablet PCs	42.9	62.3	150.8	45.0%	28.6%
Total PCs	109.5	120.8	199.0	10.3%	12.7%
Smart Phones	111.0	134.2	242.3	20.8%	16.9%
Feature Phones	59.3	41.0	4.2	-30.8%	-41.2%
Mobile Phones	170.3	175.2	246.5	2.8%	7.7%
Total Devices	279.8	295.9	445.5	5.8%	9.8%

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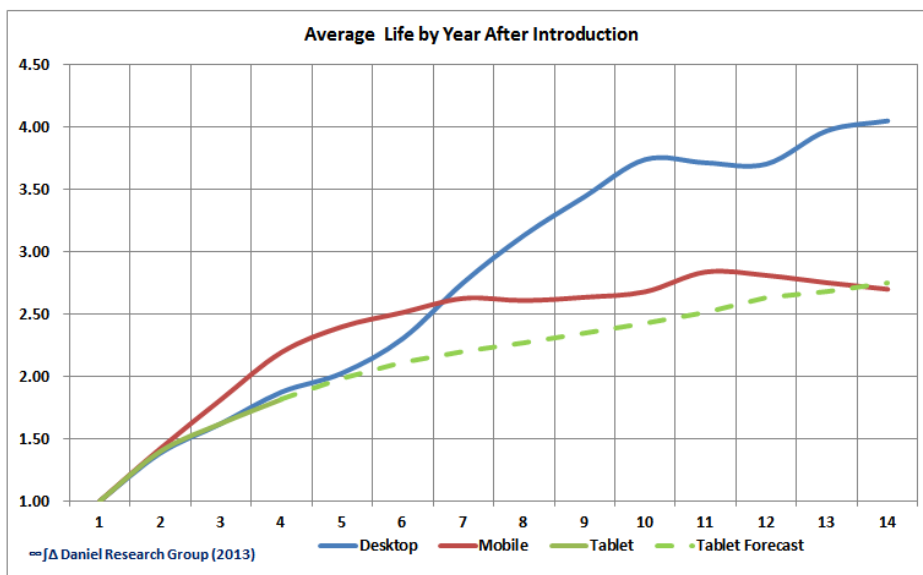
Traditional PC shipments continue to decline as users maintain a wait and see attitude. There are a number of reasons influencing users to delay Desktop and Mobile PC replacement decisions.

- The unprecedented **rate of new tablet and hybrid PCs entering the market** every week is interfering with the normal evaluation process. For many end-users, the best way to avoid buyer remorse is to wait. This is especially true at the low end where the demarcation between ultra-slim Mobile PCs and powerful Tablets is disappearing.
- Concerns about the **evolution of Windows 8** into a form more supportive of traditional PC users wants and needs
- Lingering doubts about the rate of **economy recovery** and fears of a downturn
- The growth of **cloud services** and the revolutionary changes occurring in the fundamental topology of the entire computing landscape

In aggregate, there is now more uncertainty among both Consumer and Enterprise buyers than ever before. We are now entering the third year of this trend as evidenced by not only declining year over year sales growth, but also by the declining replacement rates and increasing average life of traditional PCs in use.



Desktops, Mobile PC, and Tablets average life trends follow the same general track. Starting at one (by definition for the first year) the average life increases to a peak mid-life value as the initial adoption process penetrates the market. This took 14 years for Desktops and 11 year for Mobile PCs. We are currently in the fifth year of the Tablet form factor and the peak cannot be determined at this time.



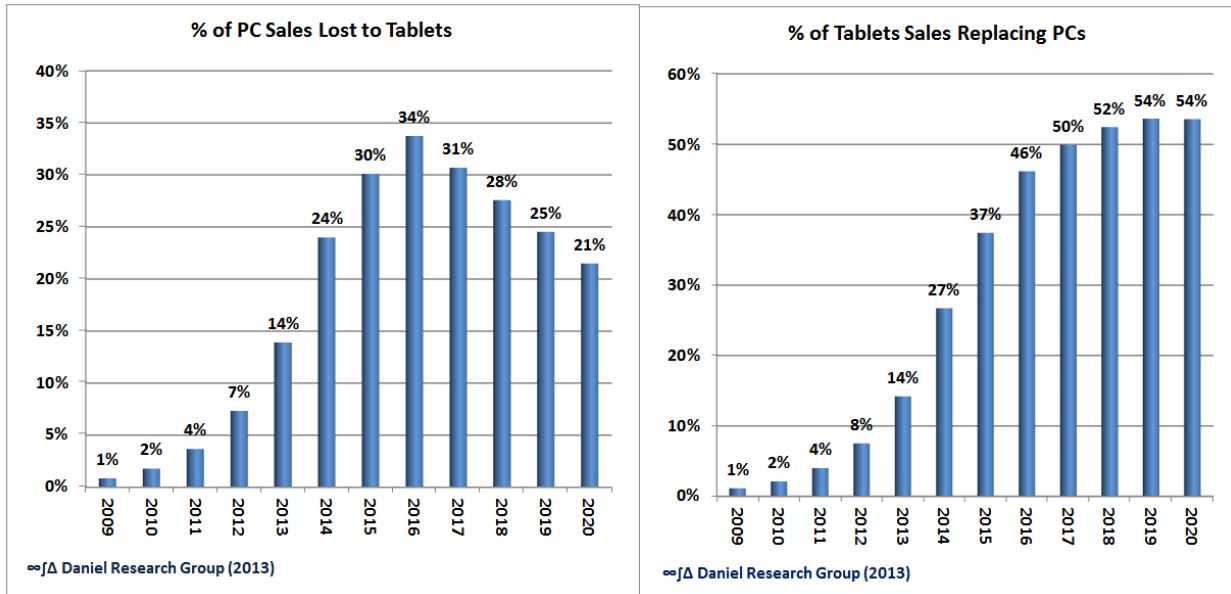
Following the peak, average life decreases as subsequent generations of hardware or operating systems accelerate elective obsolescence. Economic factors have added variance to the basic trend, increasing the average life during weak conditions. Eventually, as the form factor reaches end of life the average life increases as the dwindling installed base is more and more comprised of users with no compelling reason to replace.

The Desktop replacement rates have been decreasing since 2006, Mobile PCs since 2007. Much of this has to do with the 2009-2010 economic down turn. However, as economic conditions improved in 2011 and 2012, the expected increase in replacement rates had not happened. While the introduction of Tablets in 2009 has had some impact on Desktop and Mobile PC replacement rates, it is not the major causal influence. Desktop replacement rates accelerated after the introduction on Mobile PCs in 2009 because they represented more of a market expansion, than a substitution product. Tablets have had, and will have the same effect.

The DRG Forecast does reflect the following assumptions:

- (2014 – 2015) - A mild economic down turn evidenced by rising unemployment rates. This will slow replacement rates and increase average life.
- (2016 – 2017) - The launch of the next generation of Microsoft Windows, as well as the introduction of new more powerful Desktops and Mobile PC that are optimized for applications that requires resident computation. This will accelerate replacements rates and lower average life.
- The eventual convergence of replacement rate behavior for tablets and the low end of the Mobile PC as the distinction between these products, and their applications blurs.

Tablets sales are offsetting the decline in traditional PC sales, driven more by their adoption into new markets, than by PC cannibalization. In both the Consumer and Enterprise sectors Tablets are significantly more likely to represent a net new addition, or a replacement for non-PC products, than a PC replacement.



Since their introduction in their present form in 2009, tablets have had a minimal effect on traditional PC sales, cannibalizing only 1% of PC sales in the introduction year, but growing steadily to 7% last year. However, the rate of cannibalization will accelerate significantly over the next two years. We estimate that tablets will replace 14% of potential PC sales in 2013 and that those sales will account for 14% of all tablet sales.

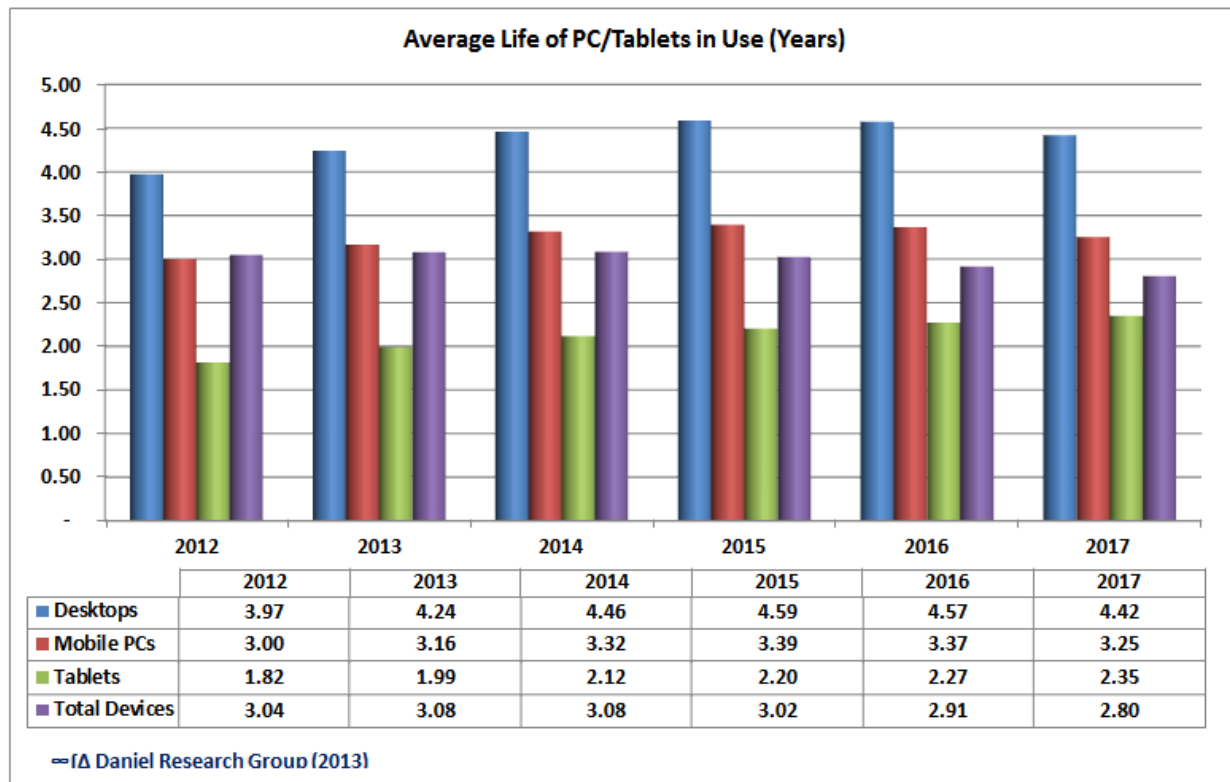
The PC cannibalization process will peak in 2016 at 34% and then begin a decline as the remaining installed base of traditional PCs support applications that require the power, performance and I/O configurations that only traditional PCs can provide. Reaching its peak in 2019, cannibalized PC sales will account for slightly more than half of all tablet sales. Cannibalization will be stronger in the Mobile PC base than in the Desktop base, and stronger in the Consumer sector than in the Enterprise sector.

Installed Bases – Units in Use

	Units In Use (M)			Annual Growth Rate	CAGR
	2012	2013	2017	2013	2012 to 2017
Desktop PCs	126.3	114.1	68.2	-9.6%	-11.6%
Mobile PCs	230.2	234.7	170.6	2.0%	-5.8%
Traditional PCs	356.5	348.9	238.8	-2.1%	-7.7%
Tablet PCs	87.0	140.5	411.6	61.6%	36.5%
Total PCs	443.5	489.4	650.4	10.4%	8.0%
Smart Phones	175.4	226.8	355.0	29.3%	15.1%
Feature Phones	150.6	110.7	18.1	-26.5%	-34.6%
Mobile Phones	326.0	337.4	373.1	3.5%	2.7%
Total Devices	769.5	826.9	1,023.5	7.5%	5.9%

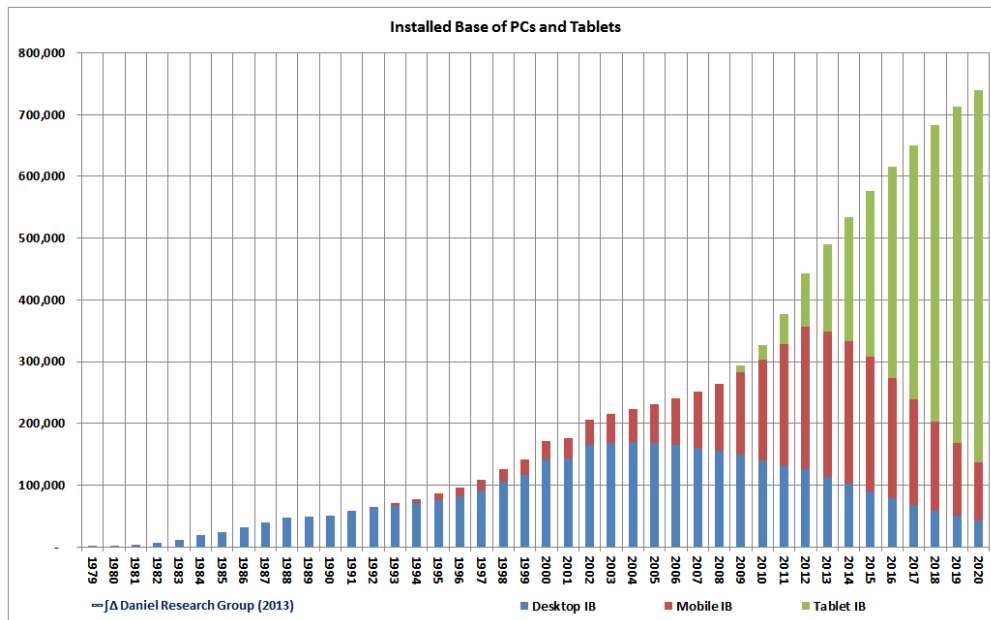
∞|Δ Daniel Research Group (2013)

Over the next five years 107.5(M) Desktops, 270.3(M) Mobile PCs, and 213.0(M) Tablets will reach end-of-life because of failure, damage or loss, or elective obsolescence. The 590.0(M) total units that are replacement sales will account for 74.1% of end-user purchases over this period. Most of these sales will be the result of elective obsolescence.



The average life of Desktops will increase by five months over the next five years, Mobile PCs by three months, and Tablets by six months. However, the total PC/Tablet average life will

decrease by three months as the mix of PCs/Tablets shifts. Tablets will grow from 19.6% of the total installed base in 2012 to 63.3% by 2017.



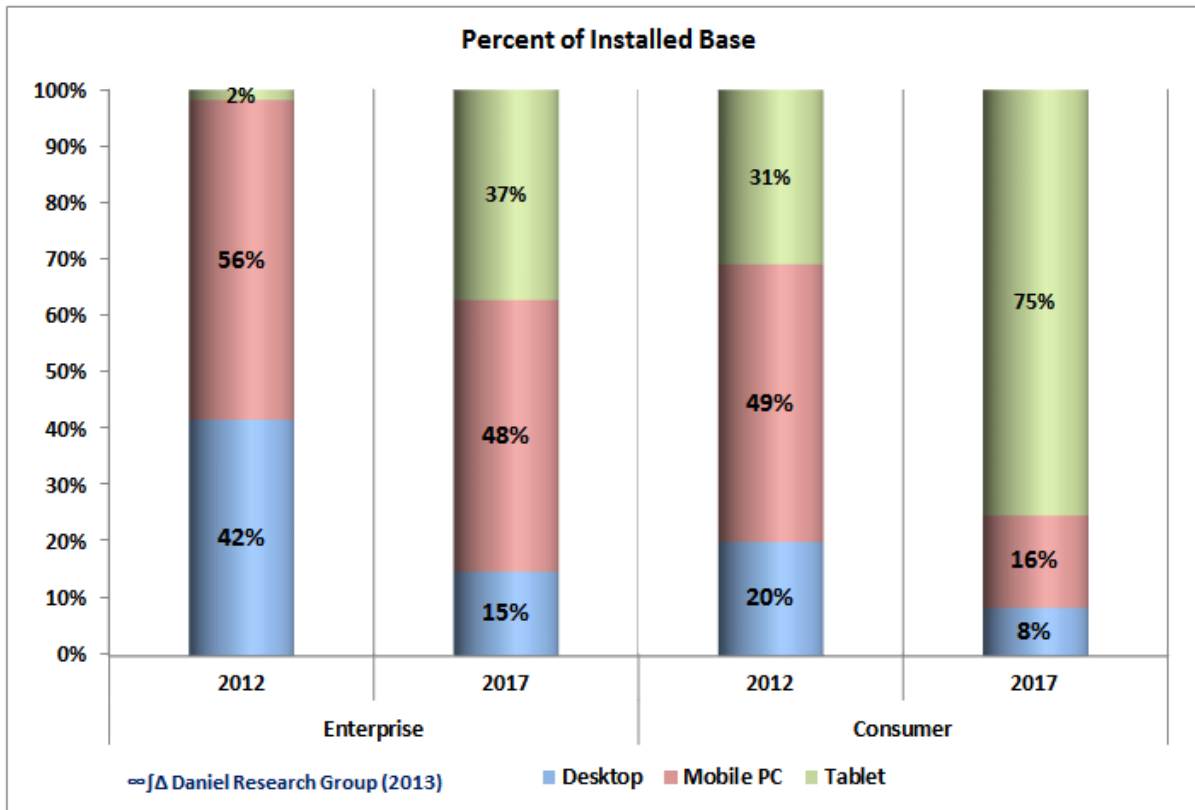
These shifts reflect the emergence of a new set of criteria that both Enterprise and Consumers users will use to make Tablet/PC choices. A more useful taxonomy would segment by primary use.

- **PC** – Personal Computer that is computation centric
- **PNAD** – Personal Network Access Device that is connectivity centric

The new decision criteria will be.

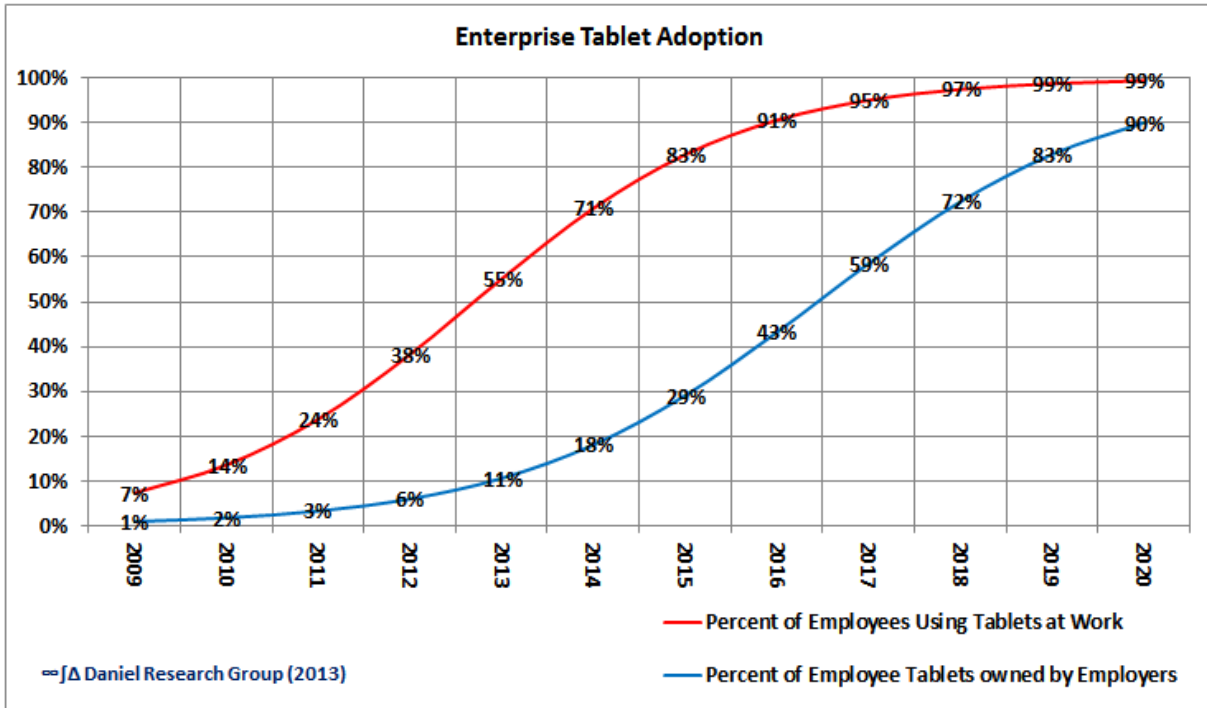
- **Resident Computation** – There will always be a class of applications and user requirements that will necessitate significant computational capabilities in the hardware. This may be for security, regulatory, or availability reasons. This criteria will apply significantly more often in the Enterprise sector than in the Consumer sector.
- **Mobility**
- **Ergonomics** – This applies to both classes, PCs and PNADs. PNADs need to be small, light, and use touch interfaces. PCs require larger input and output peripherals that facilitate efficient human/machine interaction over longer periods of time. From an evolutionary point of view, our visual interface with our environment is vertically oriented while our tactile interface is horizontal.
- **TCO** - Total Cost of Ownership

Consumer/Enterprise Segmentation



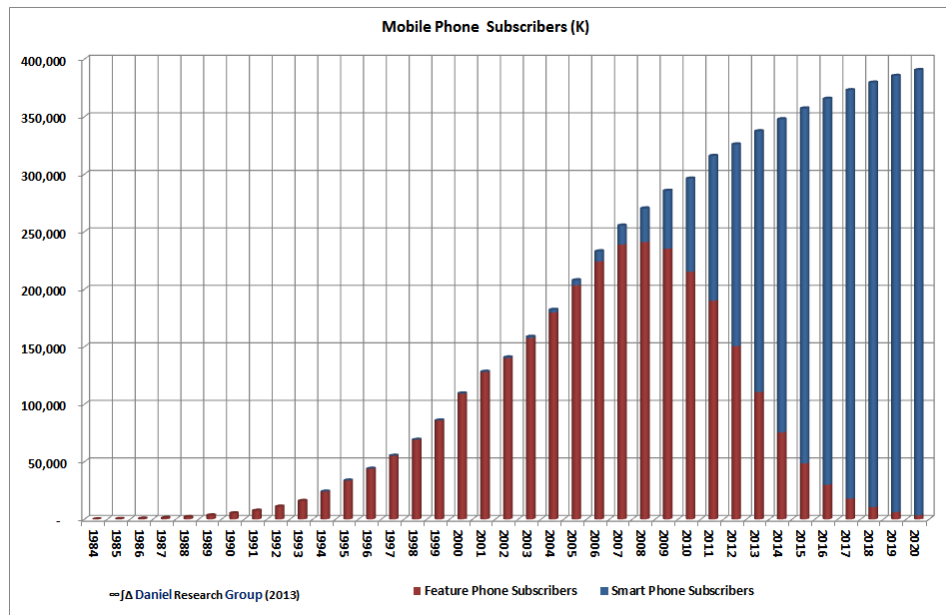
Mobility will continue to trump the need for resident computation in both the Consumer and Enterprise sectors. Desktops will lose 31% of its Consumer installed base units and 58% of its Enterprise installed base units to Mobile PCs and Tablets. Mobile PCs will lose 45% of its Consumer installed base units over the next five years, while its Enterprise installed base increases slightly by 0.5% units. The tablet Consumer installed base will triple over this period while the tablet Enterprise installed base will increase by a factor of 24 from its very small current base.

The DRG model uses the criteria of ownership to segment tablets. While the use of tablets in the Enterprise sector is already significant, most of these tablets are owned by the employees and are therefore counted in the Consumer sector. DRG believes that the current BYOD model is not sustainable in the long-run as it increases Enterprise risk in a number of areas, as well as placing IT management in an unacceptable responsibility/control position. This is not the first time that the introduction of disruptive technologies has challenged IT control. In each of the prior instances, IT had eventually regained control for compelling economic and organizational reasons.



Mobile Phones

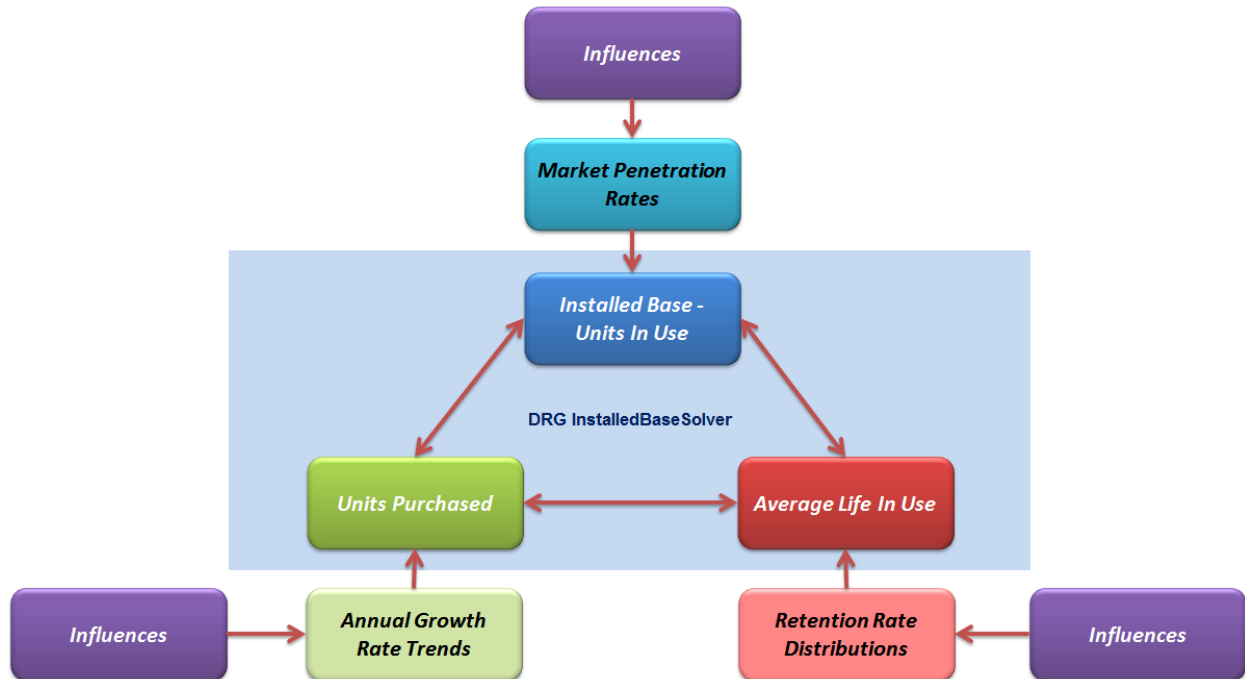
Smart Phone penetration into the total Mobile Telephone subscriber base will reach 95% penetration by the end of 2017.



However, annual sales growth rates will continue to decline, even as replacement rates begin to accelerate after 2014.

The DRG US PC, Tablet & Mobile Phone Baseline and Forecast

∞[Δ Daniel Research Group US PC, Tablet & Mobile Phone Market Model



Database

- **Taxonomies**
 - Time – 1978 to 2020
 - Product
 - Desktop PCs
 - Mobile PCs
 - Tablets
 - Feature Phones
 - Smart Phones
 - Market Sectors
 - Consumer
 - Enterprise
- **Metrics**
 - Units Sold to End-Users
 - Installed Base - Units in Use
 - Installed Base Units Retired
 - Average Life of Product in Use

Please contact Daniel Research Group for prices and availability of the database, the model, and custom consulting

Contact Information

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Daniel Research Group

Daniel Research Group offers consulting and market research services to clients whose products and services are technology based or enabled. The primary focus is on providing results, solutions, consulting and training to clients that have strategic and tactical decisions that require Forecast, Segmentation, Market Share, and other market modeling requirements.

The full range of traditional market research data gathering and analysis services support these engagements, including quantitative and qualitative surveys, focus groups, demographic and firmographic data acquisition and analysis, as well as input from technology and industry experts. While the emphasis is on delivering data and actionable recommendations, DRG often designs and develops custom models and modeling tools for client use, as well as providing training in these areas.

Stephen J. Daniel - President

Mr. Daniel's three decades in the Information Technology Industry has given him a unique blend of Market and Technology experience coupled with a deep understanding of Market Research Methodology. His primary strength is in understanding the decision making context within which the results of his research will be applied. This is manifested by his ability to design and execute studies that precisely meet client objectives in a timely fashion and at reasonable costs.



After receiving his BS in Finance in 1970 from Northeastern University, Mr. Daniel earned an MBA in Quantitative Analysis from New York University in 1974. He is a member of the American Statistical Association, The Market Research Association of America, the American Marketing Association and the Qualitative Research Association of America.