

Smartphones: Building profitability and loyalty in the mass-market

Industry Briefing

In many mature wireless markets, smartphones already account for one in three handsets sold. By the end of 2011 they will have overtaken featurephones.

As the wireless industry's fastest growing category of device, smartphones are opening up many new and exciting revenue-generating opportunities. However, the migration from the prosumer to wider consumer markets is not without its challenges. This paper identifies five key pressure points that are facing wireless carriers and challenging the profitability and loyalty of their smartphone consumers.

Contents

EXECUTIVE SUMMARY	p3.
THE RISE OF THE SMARTPHONE	p4.
Subscriber Break-Even	p4.
Smartphones and the Technology Adoption Lifecycle	p5.
- Innovators and Early Adopters	p5.
- Leaping the Chasm	p5.
CONSUMER BUYING BEHAVIOR AND MOTIVATIONS	p6.
IDENTIFYING THE PRESSURE POINTS	p8.
PRESSURE POINT ONE: USER BEHAVIOR	p8.
The Golden Hour	p9.
PRESSURE POINT TWO: DEVICE SUBSIDIES	p10.
Service Usage	p11.
PRESSURE POINT THREE: COST TO SUPPORT	p12.
Increased Average Handle Time	p12.
- AHT by Operating System	p13.
- Problem Type by Operating System Brand	p14.
Escalation and the Threat of No Fault Found	p15.
Propensity to Call	p16.
PRESSURE POINT FOUR: SERVICE CONFIGURATION	p17.
Failures in the Preconfiguration Model	p17.
PRESSURE POINT FIVE: UNLIMITED DATA PLANS	p19.
SUMMARY	p20.
RECOMMENDATIONS	p21
APPENDIX ONE	p23

EXECUTIVE SUMMARY

Smartphones are currently witnessing a period of rapid growth. In mature markets they currently account for nearly a third of all handsets sold; by the end of 2011, they will have overtaken featurephones¹.

Established smartphone brands are quickly expanding outside of their traditional enterprise markets to attract a wider consumer demographic and maintain share in a fiercely competitive market. Factors including the open-sourcing of Operating Systems and a reduction in component prices have helped to lower the price point of smartphones. In addition, a strong ecosystem of third-party applications has helped to drive consumer interest in a wider portfolio of data applications and allowed carriers to further leverage their investments in high-speed data networks through the development of new offers such as application stores.

However, while the increasing proliferation of smartphones on carrier networks offers immediate, and obvious, revenue opportunities it does come with a degree of risk to subscriber profitability. In particular, the stresses that are placed on existing support channels as consumers explore sophisticated smartphone services can quickly erode margins that have already been reduced by the high subsidy costs carriers must bear to make smartphone technology accessible to the wider mass-market. In addition, carriers are facing increased price competition and an effective cap on the revenue they can extract from consumers with the introduction of unlimited data plans.

For carriers the challenge will be to both manage this support burden and also help a wider demographic of consumer discover the full range of revenue-generating features and functions available to them. If this doesn't happen, consumers will default back to more familiar services and not realize their full revenue-generating potential. While consumers will change their devices without much thought, changing user behavior on the device is not so simple.

This report looks to highlight some of the challenges that will face wireless carriers as they look to increase the population of smartphones within their portfolio and attached to their networks.

THE RISE OF THE SMARTPHONE

Handset shipment volumes have slowed significantly over the last two years, reflecting both the downturn in consumer spend and also the extension of wireless carrier contract terms to an average of 24 months (thereby extending the frequency with which handsets are naturally upgraded). However, one segment of the handset market has seen progressive gains; smartphones.

Characterized by advanced Operating Systems (OS), smartphones offer the ability to access a wide set of data services; including mobile internet, email, navigation services, application stores and social media. Mobile carriers have been principle in driving this growth and actively use the smartphone as the catalyst for igniting mass-market interest in data services and migrating subscribers onto more lucrative data tariffs.

It is now expected that by the end of 2011, smartphones will comprise +50% of device sales in mature markets (+30% on a global basis), taking significant share from the more traditional featurephone segment. This moves smartphones out of the prosumer markets and into the truly global mass-market; a seismic shift that is by no means free of risk. Indeed, smartphones, while representing enormous potential to wireless carriers, also represent a key challenge to profitability and subscriber loyalty.

Paradoxically, in the short to medium term, the introduction of new products and services that are designed to increase revenue can actually have a negative impact on profitability. This is due to the increased support burden often encountered as consumers (and carriers' supporting infrastructures) look to navigate new and complex features and functions. By means of an example, current analysis shows that smartphone support transactions typically take 30% longer to resolve than featurephone transactions². (See Fig 1.)

Root cause analysis of these support interactions shows how smartphone support costs are being impacted bilaterally by device complexity. Principally, the type of problems being presented to support channels are of an increasingly complex nature, reflecting the more advanced features, functions and services available to the consumer. This is then compounded by the added time it takes a technical support agent to correctly diagnose and resolve a problem on a more complex device type.

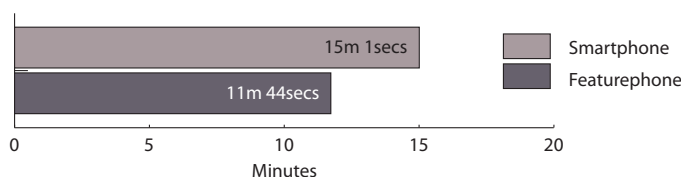


Fig 1. Blended Average Handle Time (AHT) across smartphones and featurephones in Tier 3 technical support environments (source: WDSGlobal 2010).

Of course, as customer care infrastructures around smartphones mature, so they will become more efficient. However, as technologies migrate through their lifecycle and mature in the mass-market, they must do so in a way that promotes profitable usage patterns. This is largely achieved by realizing efficiencies across the support infrastructure and mitigating common and costly user experience failures before mass-market adoption.

Subscriber Break-Even

Margin erosion is also compounded by the heavy subsidy cost that nearly all mobile carriers need to apply to smartphones in order to lower the price point in line with consumer expectations. A topical example of this comes from the Apple iPhone. The handset has undoubtedly delivered brand value to carrier partners globally and media reports suggest that iPhone users consume more data services than non-iPhone users. However, a report from industry analyst Yankee Group, suggests that a number of carriers offering the iPhone don't turn a profit on the subscriber until month 17 of a 24 month contract³.

This is symptomatic of the high subscriber acquisition costs (including an estimated US\$350 handset subsidy), high data usage and support costs and the commercial model surrounding application downloads that are characteristic of iPhone subscriptions.

Smartphones and the Technology Adoption Lifecycle

As smartphones migrate into the wider mass-market, they will pass along the technology adoption lifecycle; this describes the unique phases of consumer adoption and acceptance that all technologies pass through.

There are five established adoption groups, beginning with Innovators and Early Adopters. These are typically eager to trial new technological functionalities and are often referred to as 'visionaries'. The fate of new technologies often depends on the experiences of these groups as it comprises opinion leaders that are often influential to the wider markets; frequently using social media tools to share their opinions. There is then a significant leap to the visionary prosumers (Early Majority) and then on to the more pragmatic consumers that form the majority (Late Majority). This leap is commonly referred to as the 'chasm' a metaphorical representation of the challenges presented in the transition from niche/early to mass-market.

Innovators and Early Adopters

The first smartphones were released in the mid-to-late 1990's. These devices, such as the Nokia 9000 communicator range, were richer in technological functionality than their elementary counterparts and this was clearly reflected in the pricing and positioning.

As the smartphone market evolved key players began to emerge from both the OEM markets (RIM, Nokia etc) and the OS world (Windows Mobile, Symbian etc). Although these are household names today, their early smartphone products were almost exclusively targeted at early adopters and, principally, the enterprise markets that were willing to pay a premium and invest time in navigating complex user interfaces and set-up procedures.

Leaping the Chasm

To cross the chasm and gain a foothold in the mass-market, smartphones were challenged with demystifying the user interface, making services more accessible and lowering the price point. This was achieved by Apple in 2007 when it launched the iPhone. Not only did Apple deliver sophisticated services through a simplified user interface, it negotiated deals with carriers around the world that gave heavily subsidized smartphones a global consumer audience. Apple was also able to disrupt traditional carrier-controlled business models, offering a hugely desirable product surrounded by a fast-growing ecosystem of third-party content and services.

We are now moving swiftly through the Early Majority phase and on into the wider mass-market comprising the Late Majority. But what motivates consumers to buy smartphones and what do they look for when purchasing a new device?

KEY POINTS:

- *Smartphones have outperformed all other handset segments for growth.*
- *The data connectivity and functionality of smartphones represents enormous opportunity for wireless carriers.*
- *Wireless carriers will face pressures to both profitability and subscriber loyalty as smartphones migrate from the prosumer to consumer markets.*

CONSUMER BUYING BEHAVIOR AND MOTIVATIONS

WDSGlobal conducted a survey of 2000 consumers (across the UK and US) in March 2010 to better understand what motivated a purchasing decision and what factors were considered in the buying process. Of course, the decision is ultimately made through a combination of factors, comprising price, brand loyalty and even available stock; however this survey looked to identify the principal influencer in the decision.

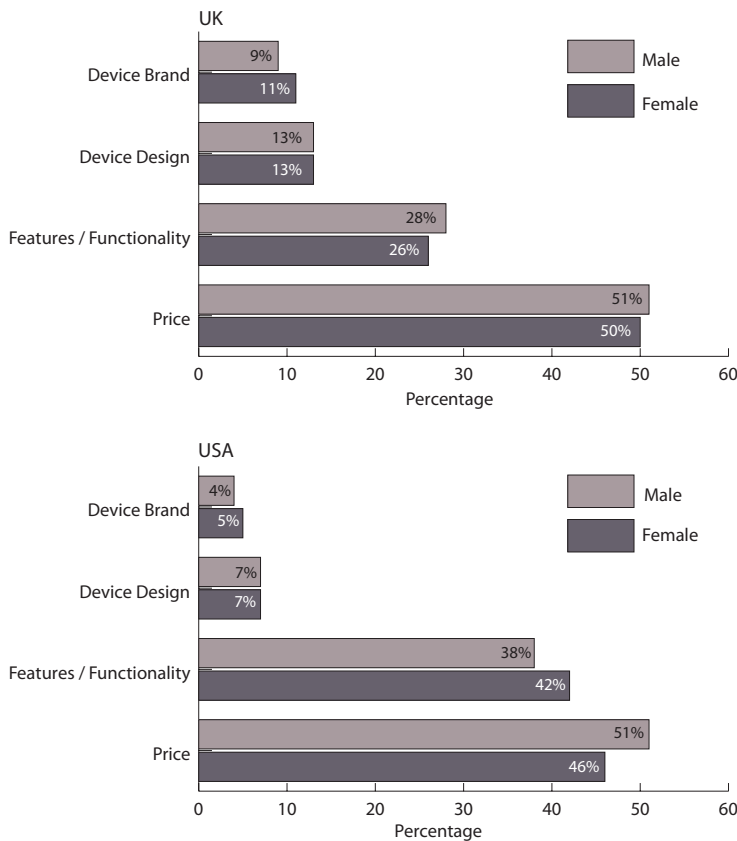


Fig 2. Principal consideration in the purchase decision (by gender) (source: WDSGlobal 2010).

Price: Overwhelmingly, and perhaps unsurprisingly, price remains the number one consideration for consumers. This validates the need for carriers to continue their investment in handset subsidies to ensure price points for expensive smartphone offers are in-line with consumer expectations and budgets. 16-34 year olds were the least price sensitive, giving greater attention to brand and design than any other age bracket (see fig 3.). The over 55s were the most price sensitive.

OEM Brand: Surprisingly, the pull of OEM brands has weakened. In the UK, just 10% of respondents showed enough brand loyalty to let it principally influence their device purchase. Although low, this figure is actually twice that of the US where just 4.5% of respondents cited the OEM brand as the most important factor in their purchase. Unsurprisingly, brand was more important to younger consumers with more than twice as many 16-35 year olds expressing its importance than the over 55s. The same 16-34 age bracket also demonstrated a keenness for phone design (see fig 3.).

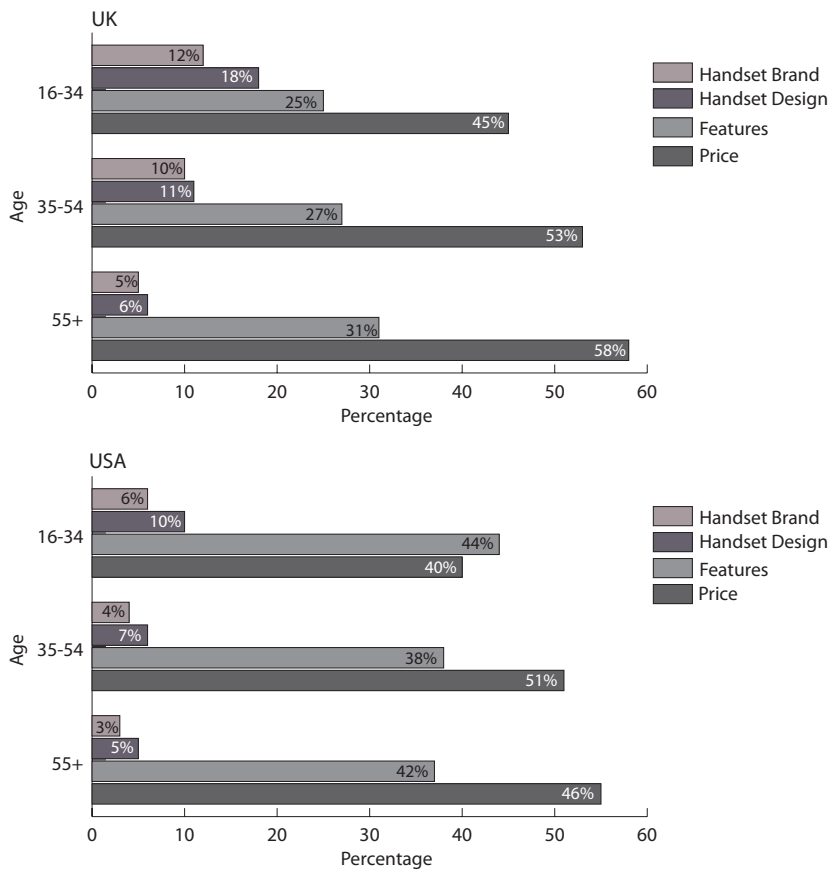


Fig 3. Principal consideration in the purchase decision (by age) (source: WDSGlobal 2010).

Third party studies suggest that brand loyalty is higher within the smartphone segment, particularly across ‘hero handsets’ such as the Apple iPhone where 90% of respondents indicated that they will purchase their next device from Apple⁴.

Features and Functions: Consumers are increasingly considering the features and functionality of the device in their purchase decision. 27% of UK respondents cited this as the top consideration. However, in reality the study showed that this largely relates to hardware features such as camera resolution and touchscreen interfaces.

Consideration for smartphone functionality remained low; less than 10% considered access to an application store and less than 15% considered it important to have access to social media when choosing their device. However, notable variances are evident by age group. Unsurprisingly the 16-34 age bracket shows a greater appreciation for social media access with almost a quarter citing its influence in their decision making. Less than 3% of over 55’s referenced its importance.

Email and internet access was, however, highly rated. Email is the third most considered feature for British consumers. Highlighting the growing influence of the OS in the smartphone world, it is encouraging to see its presence both acknowledged and considered by the consumer when evaluating mobile devices. 15% of UK consumers look at the OS when evaluating offers; receiving greater consideration than navigation/map functionality.

The table below lists the top 10 features considered in a mobile device purchase by both UK and US consumers.

UK	16-34	35-54	55+
1.	Camera Resolution	Camera Resolution	Camera Resolution
2.	Internet Browsing	Internet Browsing	Instant messaging
3.	MMS	Email Access	Touch Screen
4.	Email Access	Touch Screen	Email access
5.	Touch Screen	MMS	Internet Browsing
6.	Access to Social Media	Instant Messaging	MMS
7.	Instant Messaging	Operating System	Navigation / Maps
8.	Operating System	Access to Social Media	Operating System
9.	App Store Access	Navigation / Maps	Access to Social Media
10.	Navigation / Maps	App Store Access	App Store Access

Fig 4. Top 10 features considered in the purchase decision by age (UK). (source WDSGlobal 2010)

USA	16-34	35-54	55+
1.	Camera Resolution	Camera Resolution	Camera Resolution
2.	Internet Browsing	Email Access	Email Access
3.	MMS	Internet Browsing	Internet Browsing
4.	Email Access	Touch Screen	Touch Screen
5.	Touch Screen	MMS	Instant Messaging
6.	Instant Messaging	Instant Messaging	Navigation / Maps
7.	Access to Social Media	Navigation / Maps	MMS
8.	Navigation / Maps	Access to Social Media	Operating System
9.	App Store Access	Operating System	App Store Access
10.	Operating System	App Store Access	Access to Social Media

Fig 5. Top 10 features considered in the purchase decision by age (US). (source WDSGlobal 2010)

IDENTIFYING THE PRESSURE POINTS

Wireless carriers have keenly adopted smartphones; building-out ecosystems of supporting data services and pricing models that neatly compliment the category's connectivity and multimedia capabilities. There is little doubt that smartphones are opening-up new revenue generating opportunities for the carrier community and that, as a device category, they represent a logical and natural evolution for the consumer.

However, the complexity of these devices means that while the opportunity is apparent, there are challenges associated with their mass-market adoption. This report has identified five principle pressure points that are currently influencing smartphone profitability.

PRESSURE POINT ONE: USER BEHAVIOR

As smartphone sales migrate through the prosumer and into the greater consumer mass-market, a wider demographic of user will be exposed to more sophisticated operating systems and functionality. It's important at this point to recognize that the buying behavior of the prosumer and consumer markets is markedly different. Motivation among prosumers is predominantly led by connectivity needs and peer conformity. The 'digital-native' generation expects, and is expected, to be connected at all times. They have a strong feature-led motivation that offers a clear rationale for purchase. After the point of purchase, there's likely a very clear process of exploration on the device, mapping to the original connectivity requirements.

Mass-market consumers may not have such clearly defined feature-led needs to be satisfied. Many will naturally churn onto a smartphone platform as part of their natural upgrade path. This means, for the mass-market, Late Majority consumer, the process of device exploration after the point of purchase is vague and unstructured.

	Prosumer (Early Majority)	Consumer (Late Majority)
Buying Need	<ul style="list-style-type: none"> Connectivity needs Peer conformity (early adopter) Technical curiosity 	<ul style="list-style-type: none"> Cyclical upgrade Replacement Peer conformity
Research Sources	<ul style="list-style-type: none"> Personal sources Social media Personal experience 	<ul style="list-style-type: none"> Commercial sources Personal sources
Evaluation	<ul style="list-style-type: none"> Cross-brand comparison 	<ul style="list-style-type: none"> Little alternative evaluation

Fig 6. Buying behavior and motivations (up to the point of purchase).

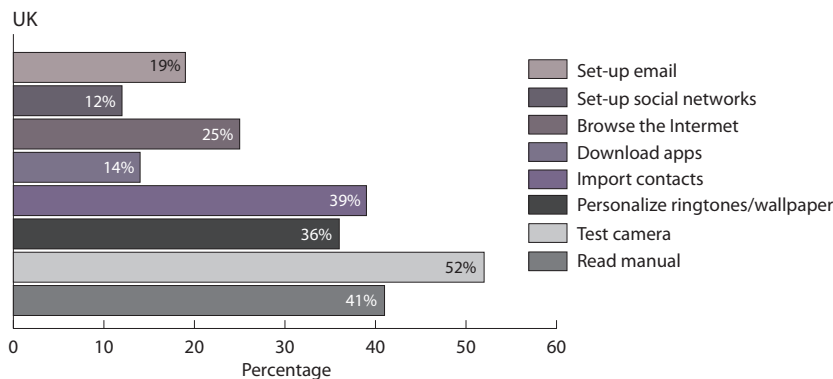
The initial exploratory phase is critical in the mobile user lifecycle as it's during these 'golden hours' that patterns of (profitable or unprofitable) usage are established. At no other point during ownership will the consumer be this engaged with the device and its available services, making it an ideal time in which to introduce new services and features.

The Golden Hours

The mobile device market is typically technology-push driven. This means that products are created ahead of the recognition of existing consumer needs and development is frequently based on consumers' possible future needs. Coupled with increasing competition between OEMs and wireless carriers to differentiate their offers, the result can be a sporadic approach to pre-empt the consumers' needs and position the smartphone as all things to all men.

Without a clear motivating need, consumers can easily become overloaded with new technologies, features, functionalities and complex set-up procedures. In such circumstances, particularly when faced with an unfamiliar device, it's quite usual for the user to simply abandon set-up of a new service and return to familiar voice and SMS applications. Ultimately, while a user may change device with little thought, he won't necessarily change usage patterns to suit.

Asked what they did in the first 24 hours of ownership, consumers continue to show a bias towards personalization of the handset (setting a ringtone, importing contacts and personalizing wallpapers). However, mapping the features considered during the purchase phase, a quarter showed a keenness to start using Internet services and nearly 20% wished to set-up their email accounts. Only the 16-34 year olds demonstrated an immediate desire to set-up social media accounts such as Facebook and Twitter and download content and applications.



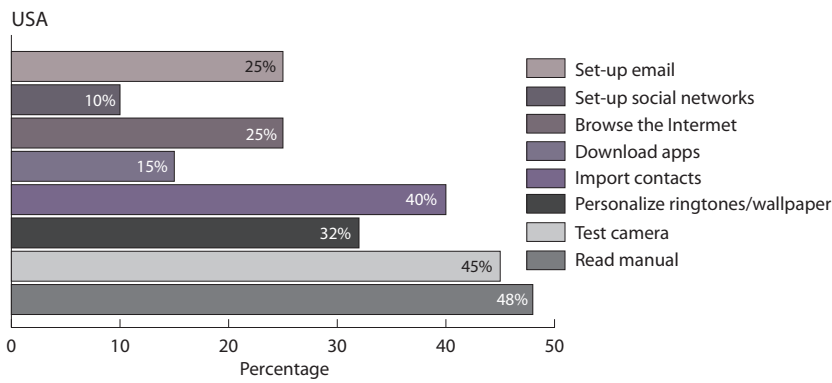


Fig 7. Activities completed during first 24 hours of new handset ownership (source: WDSGlobal 2010).

KEY POINTS

- The buying behavior of the prosumer and consumer is markedly different.
- For prosumers, there’s likely a very clear process of exploration on the device, mapping to their original connectivity requirements. This clarity may not be present among the Late Majority, leading to poor service discovery during the ‘Golden Hours’.

PRESSURE POINT TWO: DEVICE SUBSIDIES

Handset subsidies have long been used by wireless carriers. In the early days of the industry, they were key in lowering device price points to a level that would help to fuel growth, attract new subscribers and establish technology parity across the network (perhaps to support a new technology such as WAP). To offset the cost of a subsidy, subscribers are locked into a contract and the carrier typically gets strong brand visibility through co-branded and highly personalized device variants.

However many markets face a number of challenges that make handset subsidies an increasingly undesirable cost. Flat growth and a capping of revenue through unlimited tariffs has been coupled with an increase in support costs and a base increase in the subsidy cost that carriers are having to swallow for more expensive smartphones.

The average carrier subsidy cost for a smartphone in 2010 is US\$200⁵. This subsidy comprises a significant percentage of the overall subscriber acquisition cost and can delay the break-even point on a subscriber by several months (dependant on tariff).

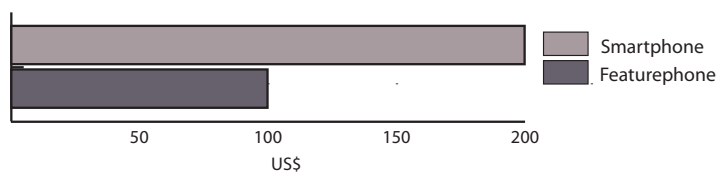


Fig 8. Average (global) handset subsidy, smartphones vs featurephones (source: WDSGlobal 2010)

Industry-wide consensus over the future of handset subsidies is varied. While regulation over the practice is tightly controlled in some markets many fast growing markets have increased their dependence on the practice to fuel growth. In particular, one Chinese carrier last year announced a plan to increase its subsidies budget threefold to US\$4.4bn⁶.

It is likely that handset subsidies will continue for the foreseeable future in mature markets. Their removal would not only destabilize carriers’ established business models, but it is doubtful (given the price sensitivity expressed by consumers in this report) that consumers would bear the full price of a smartphone (US\$400-500) over cheaper alternatives from the featurephone category.

Handset manufacturers are on a continuous cycle of improvement, offering handsets with greater camera resolutions, touch interfaces, battery performance, processing power and memory resources, for example. In a market where the total shipment volume of featurephones has threatened to stagnate, the ability to increase the unit price of a growth product such as a smartphone is welcomed by the OEM community. However, unless consumers embrace the full breadth of services that their smartphones are capable of, it becomes difficult for the carrier to see any proportionate revenue uplift from the increased performance and functionality of smartphones that they are subsidizing. It is therefore imperative that any strategy to support the growth of smartphones is done so in alignment with a strategy to promote greater service discovery and adoption across the breadth of smartphone capabilities and associated carrier services.

Service Usage

Consumers were asked about the data services that they use on a regular basis (at least once per week). SMS was not included. 30% of all respondents use email at least once per week (this was the most cited data service across consumers), and over a quarter of all respondents browse the internet. Analyzed by age, it is the younger consumer that routinely accesses smartphone-enabled services such as application stores and social media. The over 55 market shows a bias towards communication and messaging, citing email and instant messaging as their top two data services. This age group is far less likely to browse the internet by some margin and less than half as likely to use MMS than the under 35 year olds. (see Fig 9.)

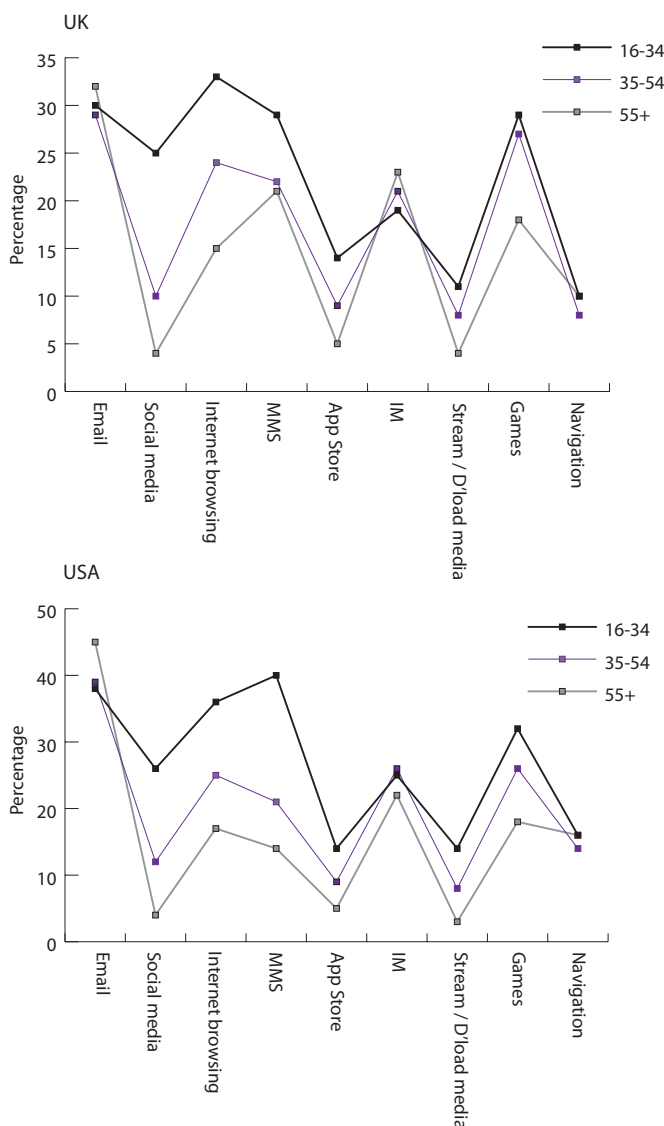


Fig 9. Data services used at least once a week (SMS not included). (source: WDSGlobal 2010)

KEY POINTS:

- *Handset subsidies are a long-standing strategy employed by mobile carriers to attract subscribers and seed the market with 'revenue-generating' technologies.*
- *In many mature markets, subsidies have become an undesirable cost of subscriber acquisition.*
- *Consumers would be unlikely to pay full-price for a smartphone.*
- *Subsidies erode subscriber profitability. Carriers must be sure to encourage active use of smartphone functionality.*

PRESSURE POINT THREE: COST TO SUPPORT

Increased competition across the mobile industry has seen wireless carriers, OEMs and service providers shifting their attention away from pure revenue generation and subscriber additions towards better management of subscriber profitability and retention. Unfortunately, the increased complexity of today's mobile devices has added new costs to support channels as consumers look to navigate new and unfamiliar products and services. Likewise, the diversity of both portfolio and non-portfolio devices connecting to networks, from smartphones to embedded devices such as tablets, e-readers and netbooks adds significant complexity to existing device management, care and technical support infrastructures.

For many, the ability to optimize these infrastructures without compromising the end-user experience has become a key business challenge; and one that will not only help to assure end-user profitability but also loyalty. For consumers too, service assurance has become a key differentiator. Today's mobile consumer demands access to a wide portfolio of services. No longer are data services limited to network controlled applications; instead users want to migrate their social networks, personal email and messaging accounts and third-party content and services onto their mobile devices. These requirements must be adequately supported and those mobile carriers who can offer competent support across third-party products and services will gain a key competitive edge.

Finally, the growth of the smartphone market has seen the need for expert multi-channel support services that extend across the lifetime of the device, maintaining not only resident consumer services but also the device's firmware and embedded applications.

There are three variables that impact cost-to-support.

1. Increased Average Handle Time

Technical support calls across the smartphone sector are typically longer in duration than equivalent featurephones. This is symptomatic of product and service complexity extending a support agent's diagnosis and resolution times. The duration of calls is expressed as Average Handle Time (AHT).

AHT is negatively impacted by the multiple variables that need to be considered by the support agent; for example multiple network bearers, instances of third party software, malware etc. must all be considered on the smartphone platform. As a rule, as technologies increase in complexity and sophistication, so the AHT typically increases. Fig.10, displaying analysis of different mobile device types within a Tier 3 technical support environment clearly illustrates this correlation.

Type	Device	Average Handle Time
Handset	Motorola Razr V3	6mins 7secs
Handset	Nokia 6085	7mins 30secs
Handset	Apple iPhone 3G	16mins 9secs
Handset	Samsung BlackJack 2	18mins 20secs
Handset	Blackberry 8310 Curve	21mins 36secs
USB Modem	Huawei E270	22mins 0secs
USB Modem	Option Wireless USB Connect Quicksilver	23mins 40secs
USB Modem	Sierra Wireless USB Connect Mercury	29mins 47secs
PC Card Modem	Sierra Wireless AirCard 881	33mins 7secs
USB Modem	Novatel MC727 USB Modem	38mins 49secs
PC Card Modem	Sierra Wireless AirCard 850	45mins 6secs
PC Card Modem	Option Wireless GT Ultra	46mins 15secs

Fig 10. AHT by device type / category within a tier 3 support environment. Typically, the lowest Average Handle Times are associated with older, entry-level devices. These are not subject to high data demands. Generally, as device complexity increases so too does the AHT, and the cost-to-support; however WDSGlobal notes that Average Handle Times are also impacted by the network to which a device is attached and the end-user's price plan. (source: WDSGlobal 2010)

AHT by Operating System

Because operating systems typically cross device brands, using the OS to benchmark average handle times offers a useful means to evaluate the relative complexity of device categories. The following analysis shows the wide range of AHT values spanning the featurephone segment (represented by the OEM's proprietary operating systems) and advanced operating systems including Symbian S60, iPhone OS, Android, Windows Mobile and the BlackBerry OS.

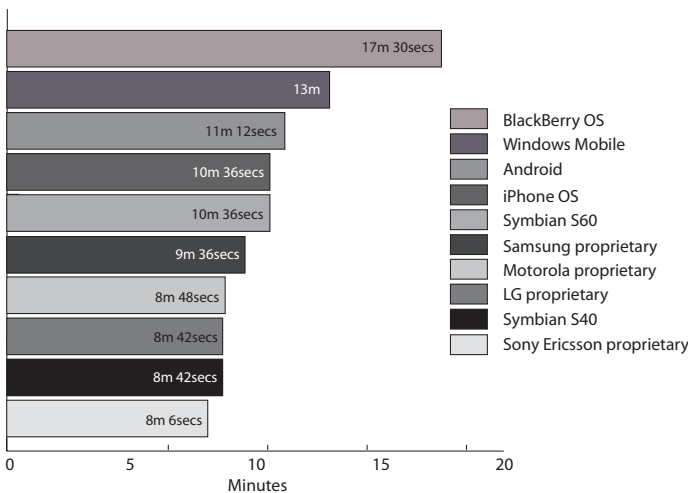


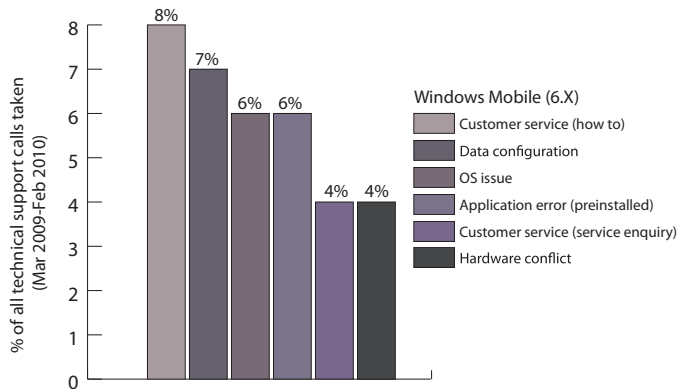
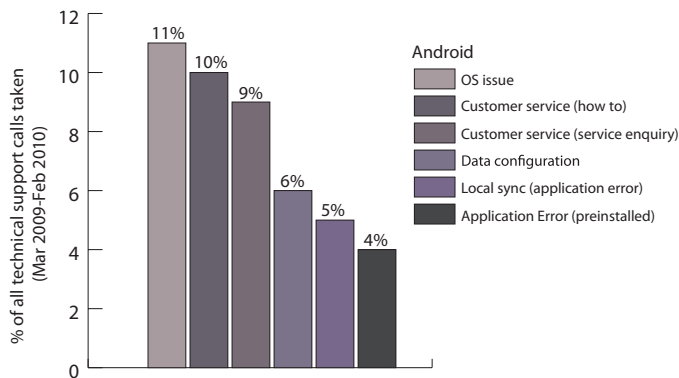
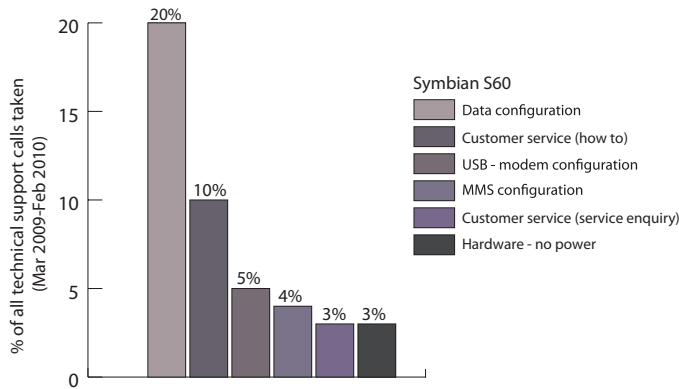
Fig 11. Average Handle Time across Operating Systems (March 2009 - Feb 2010). (source: WDSGlobal 2010)

The only major deviation comes from BlackBerry. This reflects the following variables i) BlackBerry problem types typically reflect more advanced use cases such as synchronization and integration with the BlackBerry BES / BIS. ii) As a proprietary platform, BlackBerry products in the consumer market are not easily configurable via industry-standard OTA (over the air) techniques (such as OMA CP). Enterprise products may include a device management client to allow remote management. iii) Although now a major consumer smartphone brand, BlackBerry's retains a strong base of enterprise users. Enterprise users display greater support requirements and can be more demanding, often requiring multiple problem resolutions within a single call.

Of course, AHT is also highly dependent on the nature of the problem being presented by the consumer to the support agent, (often, the more complex the problem the longer it will take to resolve). Any spike or disproportionate percentage of calls that is associated to a single problem type would indicate an inherent usability fault with either the device itself or the network / network service to which it is attached.

Problem Type by Operating System

The following analysis shows the top problem types across a selection of top selling smartphone operating systems. The data used in this analysis is displayed as a percentage of all tier 3 tech support calls taken in a 12 month period (Mar 2009-Feb 2010) by WDSGlobal across multiple contracts and on a global basis⁷. See Appendix One for problem type definitions.



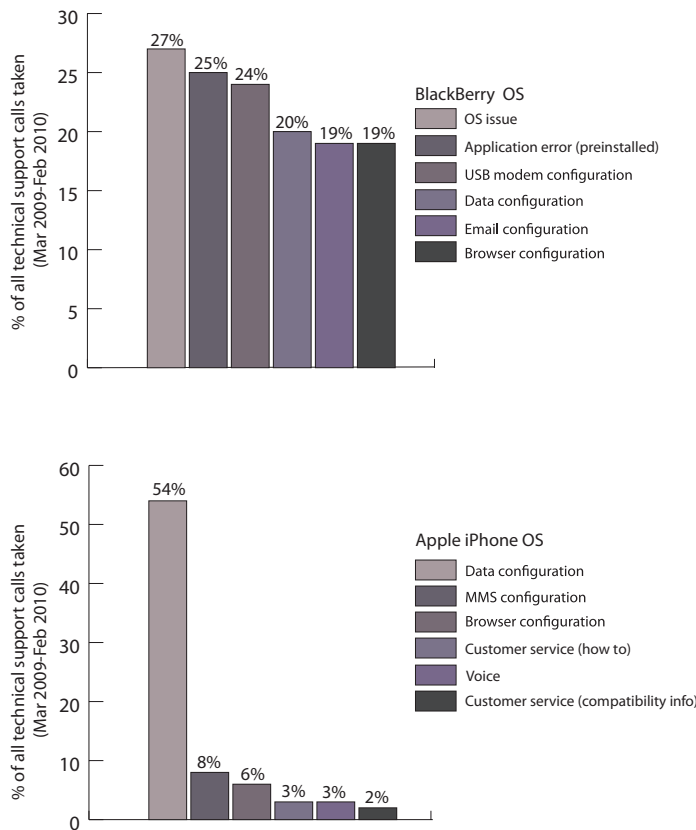


Fig 12. Problem types by operating system (source: WDSGlobal 2010)

Over 50% of all technical support calls across the Apple iPhone portfolio relate to configuration of data services. It is important to note that the support transactions used in this analysis do not principally come from official Apple-partnered networks. In most cases the support transactions available to this study come from non-Apple partnered networks. It can therefore be assumed that this spike relates to unlocked iPhones being churned onto competitor networks.

This is becoming a key challenge for carriers as devices churning between networks often arrive without the appropriate data settings. Without an adequate automatic mobile device detection and management infrastructure, the carrier is reliant on the consumer proactively contacting customer care to request the settings. In many cases, this does not happen and the consumer limits his service to low-margin voice and SMS services.

Symbian displays a more balanced view, however the majority of problem types are still reflective of basic data configuration. BlackBerry OS, at the opposite end of the spectrum displays a remarkable spike in USB - Modem Configuration. This relates to the use of the device as a tethered modem to deliver mobile broadband connectivity to a laptop, netbook etc. This trend is suggestive that the majority of inbound calls originate from enterprise users. In such cases, many basic configuration issues are resolved by an enterprise's internal IT support function. Those calls escalated to the carrier support channel (or made by the enterprise user themselves) relate to more advanced / non-standard use cases, such as tethered modems.

2. Escalation and the Threat of No Fault Found

The complex nature of the smartphone support environment will, in the short to medium term, require a greater degree of support escalation up to more expensive technical support resources.

The temptation for many carriers will be to dissuade cheaper tier one support resource from escalating calls up to more expensive support resources as a means to managing cost. However, this comes at a risk to long term profitability and consumer loyalty.

In particular, the threat of No Fault Found (NFF) returns, which is 13% higher in the mobile industry than any other consumer electronics category. Equal to and often surpassing the cost overhead of the contact center can be the cost of servicing and administrating returned mobile equipment. At first glance, a high returns cost associated with a mobile device may be attributed to poor quality hardware designs, substandard components or temperamental software design; however recent research by WDSGlobal indicates that the problem runs far deeper than this.

WDSGlobal's findings, drawn from the monthly provision of over 19,000 support calls for a major pan-European retailer, show that in over 63% of attempted device returns there was no physical fault with the device hardware or software⁸; instead the fault could be traced to poor user education or a problem in set-up and configuration. In both cases, a competent support infrastructure would have been able to resolve the issue quickly and efficiently.

However, because of a drive to cut costs the retailer was managing several categories of technical support call through a cheaper, and inexperienced, support channel. Problems were being misdiagnosed; resulting in the high rates of NFF.

3. Propensity to Call:

Responding to commercial pressures to reduce their development and time-to-market cycles, the industry has become over-reliant on deploy-now, fix-later methodologies that see buggy devices launched to market with the intent of delivering over-the-air fixes at a later date. In other cases, bugs are missed during the Quality Assurance phase altogether. Both practices can drive PTC (Propensity to Call) rates and require network-wide device management tools to manage the remote updating of devices, resident services and firmware objects.

Propensity to Call measures the instances of a device 'presenting' itself at a support channel during its lifetime within the network. PTC is influenced by a device's complexity, reliability and usability, perhaps caused by a firmware defect, a poorly designed product or simply a lack of testing. The figure can be calculated by comparing support volumes generated by a product against the relative shipment volumes for the same period. For example, a shipment of 10,000 units generating 500 support calls would have a PTC of 5%. The normal range for PTC is between 5-15%. Anything above this figure would suggest a deficiency in the user experience, possibly caused by a firmware defect.

PTC can also be applied to the consumer; for example, how frequently will a consumer interact with a support channel depending on the category and type of device he owns. Is a smartphone owner more likely to call technical support more frequently than a non-smartphone owner given his requirements? There is actually no great variance between device categories; indeed smartphone owners are less likely to contact technical support than featurephone owners. Annually, smartphone owners contact technical support 1.25 times, against 1.37 times for featurephone owners. (See Fig 13.)

This may be reflective of the threshold at which a consumer seeks technical support is lower among featurephone owners. Featurephone users may struggle with features, services and set-up procedures that are easily accomplished by more advanced prosumers and smartphone owners.

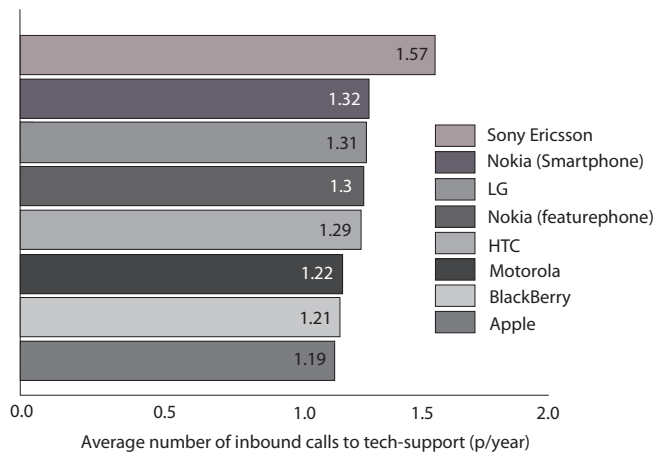


Fig 13. Average call frequency (inbound) into technical support desk per year (by OEM brand).

PRESSURE POINT FOUR: SERVICE CONFIGURATION

Beneath the veneer of today's mobile technologies and user interfaces, very little has changed in the underlying design and usability of mobile products and services in the last five years. Having purchased the latest multimedia device with built-in email and IM client, Wi-Fi connectivity, mobile TV and internet browser, consumers are often expected to plough through user manuals and contend with frustratingly unhelpful error messages that seem to have been designed with the sole purpose of antagonizing and disengaging the user. As a means of introducing the consumer to new services it's hardly an effective approach.

Studies show that users will spend no more than 17 minutes trying to configure a data service such as email⁹. After this time it is abandoned. For many users the challenge of setting-up and using a complex device or service will outweigh the potential benefits derived through its use, resulting in its abandonment and users defaulting back to more familiar and 'comfortable' services.

For other more persistent users, the path to service adoption will involve multiple engagements with customer service agents or web portals in search of technical assistance in the pursuit of satisfaction. Neither of these situations can be considered acceptable, resulting in damage to revenues, profitability and ultimately customer loyalty.

With this in mind it's important that to aid service discovery and exploration, mobile devices are ready to run and configured for all principle carrier-controlled services from the moment they are unboxed. Essentially, allowing the consumer to 'walk out working'. Most handsets purchased directly from a mobile carrier channel are indeed preconfigured in this way; however, pre-configuration isn't foolproof.

Failures in the Pre-configuration Model

Third party services: Both the availability of smartphones and transparent, low-cost data plans has allowed the consumer to migrate his existing online 'lifestyle' from the desktop to the mobile device. Access to third party services, such as email and social media services, is considered a key benefit of smartphone ownership. While operators can pre-configure devices for their own generic services (such as MMS and Internet browsing), any service that has settings unique to the user cannot be pre-configured. Such services include third-party email, IM and social media services. In these scenarios, the consumer must make the time commitment to configure a new service using available support tools.

The extent of this problem can be seen in Fig 14. In both the UK and USA email is the most problematic data service to configure, nearly a third of respondents in the UK had had difficulty setting-up an email account on their mobile device. In the US the figure remained high at 21%. The US also showed a spike in IM configuration with 20% reporting problems.

Both email and IM may include third-party services and settings personal to the consumer. In many cases, to complete set-up successfully, the consumer would be required to enter complex parameters, including incoming and outgoing server names, port numbers and even security types.

It is interesting to note the disparity between UK and US consumers struggling to configure their mobile internet connections. The percentage of UK consumers citing problems is almost double that of the US. This can be attributed to the higher proportion of SIM-free, SIM-unlocked devices churning between European GSM networks.

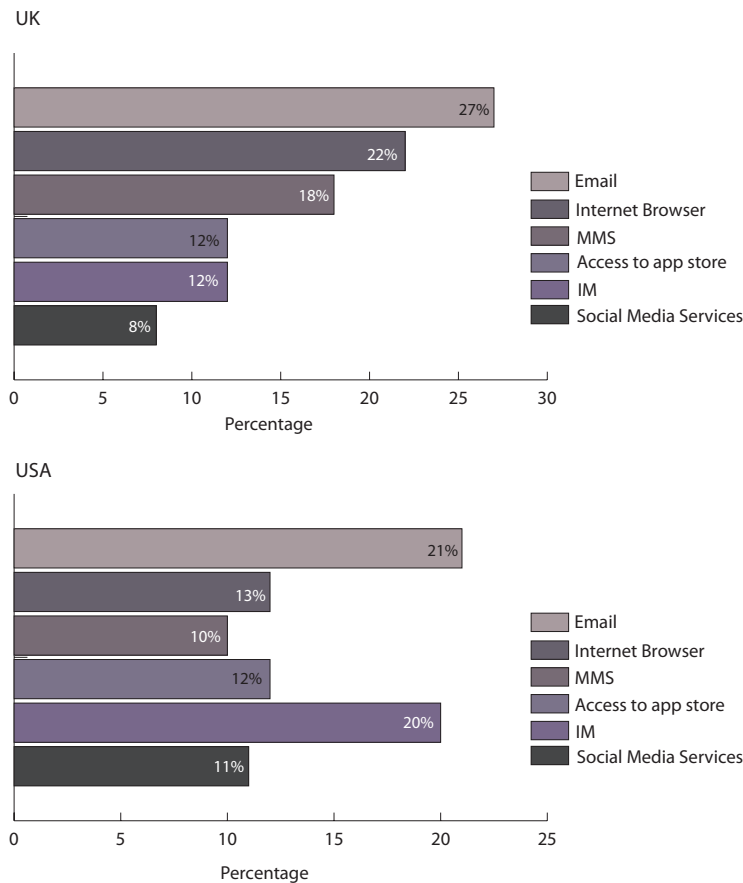


Fig 14. Percentage of consumers who have experienced difficulty setting-up a data service

Non-Portfolio devices: The nature of handset ownership is changing and mobile carriers no longer have an exclusive monopoly on handset distribution and retail. Today, consumers are acquiring devices from a variety of third-party retailers, both on and off-line. They are also recycling handsets between friends and family or selling them on through online auction services.

These devices may be SIM-free or SIM-unlocked and can be connected to any network. However, they will typically be devoid of any data settings. In such circumstances, carriers must make sure that their mobile device management and support infrastructures are optimized to manage the configuration of ‘non-portfolio’ devices. Support agents must have the knowledge and tools to problem solve and fix issues on any device that is attached to the network and capable of generating revenue, regardless of its source. Likewise, web-based self care tools and mobile device management deployments must be able to identify the growing breadth of devices types (including tablets, netbooks etc) appearing on carrier networks and manage their configuration and ongoing care and maintenance seamlessly without comprising the user experience.

Multi component: Configuration and set-up may include connection of two or more individual components. The most obvious example of this is the connection of a smartphone to a laptop to create a tethered modem.

Such configuration tasks are subject to a number of variables, often dependent on the hardware and software configuration of the target laptop.

KEY POINTS:

- *If a service is too complex to set-up, a consumer may abandon it and default back to more familiar services.*
- *The average length of time a consumer will spend trying to configure a service is 17 minutes.*
- *Services must be ready to run.*
- *Consumers want access to third-party services (including social media and email). Such services are difficult to preconfigure.*
- *The changing nature of device ownership is challenging carriers' existing configuration channels (mobile device management platforms and support desks).*

PRESSURE POINT FIVE: UNLIMITED DATA PLANS

As the market for mobile data (either through application store downloads, mobile email, web or mobile broadband etc) finally starts to reach its tipping point, a new goldrush has begun. The last 12 months have seen massive price erosion across many markets as carriers battle to maintain share in a saturated market.

Finally realizing the need to lower the barrier to data access and mitigate the threat of bill shock, price plans that include unlimited data have started to creep in under GBP£20 in the UK (US\$32). That's a huge shift from where we were even just 12 months ago. Now, US carriers are upping the game. Retail goliath Wal-Mart was one of the first to launch an all-inclusive voice and data plan at under US\$45. Others have quickly followed.

Interestingly, the average ARPU in the US is \$78 p/month¹⁰. This suggests that the trend towards low-cost unlimited price plans is slashing ARPU levels and effectively applying a cap to the revenue that can be extracted from a subscriber. Many carriers will therefore be under enormous margin pressure and be looking at ways to maintain profitability across their subscribers by optimizing costs such as support.

The threat is amplified for Tier One carriers who offer heavily subsidized smartphones and high speed 4G data networks. In such cases, carriers may struggle to balance the data consumption that they have encouraged through unlimited plans and subsidies with an increasingly expensive care and support burden as consumers navigate a new world of data.

An additional consequence of this trend has been an impact to quality-of-service. From smartphones to mobile broadband dongles, embedded 3G modules and mifi units, the range of data-hungry products and services, coupled with the availability of low-cost unlimited data plans, has created unprecedented strain on networks. Most likely, the year ahead will see the introduction of some innovative pricing models, such as tiered pricing with consumers charged in bands depending on their usage.

We will also see policies to restrict file sharing and streaming media applications and technologies to offload non-core data traffic through WiFi networks.

KEY POINTS

- *The shift to unlimited data plans is reducing ARPU levels and capping the revenue that can be extracted from a subscriber.*
- *Unlimited plans place added stress on subscriber profitability.*
- *The threat is greater for Tier One carriers with high-speed data networks and a wide portfolio of subsidized smartphones.*

SUMMARY

Smartphones are currently witnessing a period of rapid growth. OEMs whose smartphone products were once positioned as productivity tools are quickly repositioning their offers to attract a wider demographic. The most obvious example of this is RIM, whose BlackBerry products were, until recently, almost exclusively sold to enterprise users. Today RIM has embarked on a global advertising campaign to enliven its brand and demonstrate the benefits of connectivity to the mass-market consumer.

Much of this shift has been accelerated by the changing dynamic of the OS ecosystem. A move towards open source by the industry's largest OS vendor Symbian, accompanied by the brand equity of Google behind the Open Handset Alliance's Android, has raised the value and awareness of the OS and its role in leading the user experience. The open source trend has also helped to lower the price point of smartphones, bringing them into the featurephone price range.

The operating system's role in broadening the appeal of the smartphone can also be found in the surrounding ecosystems that have sprung-up, in particular third-party applications. While mobile carriers and handset brands have themselves launched application stores in a bid to win a greater share of the consumer wallet, it is the OS brands, such as the Apple iPhone OS and Android, that continue to lead the application charge and drive consumer interest in wider, non-carrier data applications.

Both the OS and OEM brands have also looked to dissolve the line of distinction that once differentiated smartphones from featurephones; that smartphones are productivity tools and featurephones are entertainment devices. Rather than offer two distinct lines of product, almost all smartphone brands available today have homogenized their positioning to appeal to both enterprise and consumer audiences. Of particular note here is Microsoft's forthcoming Windows Phone 7 OS which has surprised the industry by completely overhauling the 'productivity' experience and closely integrating its additional lifestyle brands, including Windows Live and Xbox.

However, this homogenization, which frequently results in a collective of office, lifestyle and entertainment features within a single UI layer, has arguably made it difficult for smartphone users to differentiate offers and establish patterns of profitable usage quickly and easily.

Smartphones undoubtedly offer wireless carriers a number of new revenue channels. They have already helped to drive consumer awareness of mobile data and supported a shift towards more lucrative data tariffs across a wider demographic of consumer. Importantly they have also allowed the carrier community to explore application stores and better leverage their investments in high-speed data networks. However, it should be noted that consumers have yet to turn the corner when it comes to selecting their mobile devices based on smartphone features and functions. Of the 2000 consumers interviewed in this study, half cited price as the principle motivator when selecting a mobile device. This suggests that factors including brand and functionality are flexed by the consumer according to the price point of the product.

Where features and functions were considered by the consumer, half cited camera resolution as the most important feature for consideration. Only 10% listed access to application stores and less than 15% cited access to social media services as a key consideration. Results varied principally by age group, with the younger audience notably engaged with more smartphone-orientated services. As the penetration of smartphones increases into wider demographics, awareness of these types of services will quickly increase.

RECOMMENDATIONS

For carriers looking to invest further in smartphones as part of their device portfolios, there are key learnings to be taken into consideration.

The difference between prosumer and consumer

- Over the coming 12 months, a wider demographic of consumer will begin to be exposed to smartphone products as part of their natural upgrade cycle. Smartphones will soon represent the majority and attract the Late Majority. Unlike prosumers in the Early Majority, this demographic may not have such clearly defined feature-led needs to be satisfied. In most cases they will continue to be influenced by price.
- The initial exploratory phase of the mass-market consumer may not be as focused as the prosumer, making it difficult to guide service discovery and introduce revenue-generating services. This is compounded by the homogenization of today’s smartphones that blend office, lifestyle and entertainment features within a single UI layer.

Get the Retailing Right

- Points-of-sale can often be fault-points in the user experience. Consumers who purchase a handset that’s not appropriate to their needs are at a higher risk of returning devices, contacting expensive support resources or simply defaulting back to more comfortable, and lower-margin, services.
- The point-of-sale is a key interaction point between the consumer and service provider. Get it wrong and at best a poor user experience will add cost to the carrier’s existing support channel, further damaging the profitability of subscribers (which has already been weakened by extensive handset subsidies). At worst, smartphones won’t meet consumers’ expectations for service and quality, resulting in a poor user experience and damaging loyalty.

Optimize the Support Operation

- The cost of supporting smartphones can be greater than existing featurephone products. Support channels must be optimized to manage consumers as they explore sophisticated smartphone operating systems and accompanying services.
- When consumers do look for support, their preferred support channel can have a notable impact on the outcome of the problem and the continued use of a service. The preferred option for the majority of consumers is to resolve an issue by consulting the manual or asking friends and family. In both cases however, the effectiveness of that approach is limited. 20% would ask friends and family for assistance before consulting any official support channel. However, only 10% considered the outcome of approaching friends and family as the most effective resolution available to them.

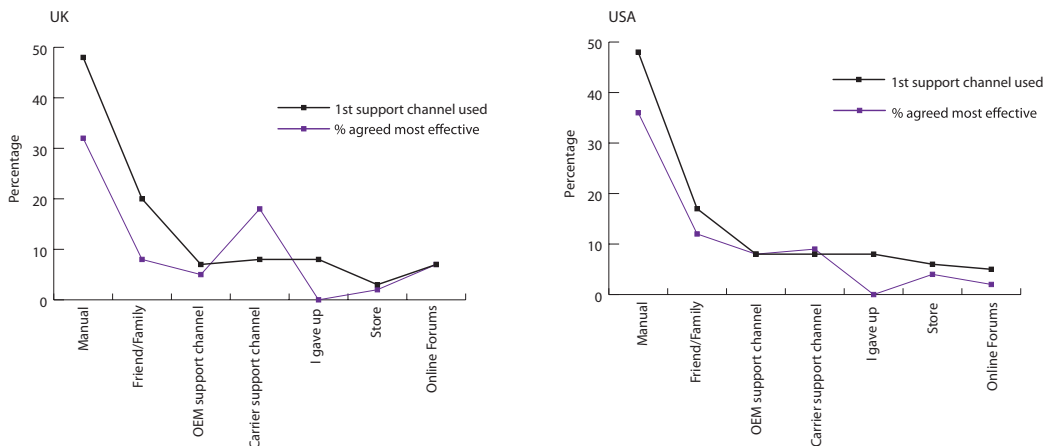


Fig 15. Preferred support channel vs most effective support channel (source: WDSGlobal 2010)

- Official support channels (including web-based self-service and more traditional telephony based contact centers) are not the primary support channel of choice for consumers. Consumers use a blend of support options, including asking friends and family, returning to the point-of-sale, or simply browsing the Internet and online forums for a resolution. In all cases, the effectiveness of these channels is low, leading to further service abandonment and brand dissatisfaction.
- Engaging with the carrier's official support channel often happens after an issue has not been resolved through other means. However, the effectiveness of the resolution offered through the carrier's official channels is rated as high and carriers are well placed to use their support channels to establish greater brand loyalty and service adoption.
- Carriers must embrace the preference of the consumer to self-serve through more informal channels, including online forums and social media tools.
- Learn from existing support channels to identify common problems facing smartphone consumers today. Can these problems be mitigated now, prior to mass-market adoption?

Establish Profitable Usage Patterns

- While consumers will change their devices with ease, changing user behavior on the device is not so simple. The support and education need is typical of complex technologies entering the mass-market and if not considered, consumers will be unlikely to discover and use the full range of revenue-generating features and functions available to them. This will damage margin and make it harder for carriers to recoup their subsidy investments,
- Of 2000 consumers surveyed by WDSGlobal, 10% stated that they wouldn't even invest time in looking for support; they would simply abandon the service. Services must work first time, everytime. launch now, fix later strategies are damaging the user experience and the revenue opportunity.

For more information on this report, or about WDSGlobal, please email:
tim.deluca.smith@wdsglobal.com

Appendix One

Problem Type Definitions as referenced in Fig 12. (Problem types by operating system (source: WDSGlobal 2010))

Application Error (preinstalled)

This problem type covers issues or enquiries regarding preinstalled applications.

Browser Configuration

This covers all issues or enquires where the Browser Application requires configuration in order for it to function correctly.

Data Configuration

This covers all issues or enquires directly related to data connectivity and the need to configure the device.

Customer Service (compatibility info)

This problem type is used when an agent provides advice or information concerning the compatibility specifications of a device or accessory.

Customer Service (how to)

This is used when an agent offers advice to a customer on how to perform basic tasks on their device such as how to power on or increase call volume.

Customer Service (service enquiry)

This covers customer service or general enquiries related to a specific service e.g. push mail services, mobile banking, network features/service etc.

Email Configuration

Used for all enquiries or issues relating to the Email configuration of a device.

Hardware conflict

Covers any Issues or faults found where the cause is due to the hardware conflicting with other devices or hardware on the target device or system.

Hardware – no power

Used where hardware issues are causing the device to fail to power on.

Local Sync (application error)

This covers the use of devices for synchronization of data to a local computer.

MMS Configuration

Used for all enquiries or issues relating to the MMS configuration of a device.

OS Issue

Used for all issues encountered with the Operating System (OS) of a device including stability and speed issues.

USB Modem Configuration

Used for the manual configuration of and issues with modem setup via a USB connection.

Voice

This covers all Voice related enquiries or issues.

About WDSGlobal

Since 1995, WDSGlobal has been dedicated to helping both service providers and consumers get the most from their mobile products and services. Blending a global network of support centers, offering class-leading service assurance on behalf of its customers, with a comprehensive suite of tools and expert services, WDSGlobal has built the industry's only platform of tools and services that actively optimizes the user experience at every point in the mobile lifecycle.

Balancing profitability with customer loyalty has become a key challenge in today's mobile markets. Wireless network carriers, handset manufacturers and service providers must now navigate an increasingly complex landscape, comprising sophisticated device-types, converged networks and increasing competition, while still assuring the user journey and delivering a compelling user experience to customers.

From the six million technical support calls we handle annually to the 2500 different device models that we remotely manage; every second of the day, our platform is collecting and analyzing industry data and publishing that knowledge across our customer deployments. It's this ability to anticipate threats to the user experience and apply fixes before they threaten end-user profitability and loyalty that means many of the world's most recognizable mobile brands now trust the outsourcing of their user experience to WDSGlobal.

Study Methodology

The consumer research was conducted online by Toluna over Wednesday 17th and Thursday 18th March 2010 on behalf of WDSGlobal. A nationally representative total of 1020 respondents were polled in both the USA and UK with an equal profile of age, gender and geographical spread per country.

Call and problem metrics referenced in this paper have been sourced from WDSGlobal's technical support contracts. They have been blended across contracts, and regions to ensure a global perspective.

Sources

1. Source: Nielsen (March 2010) <http://blog.nielsen.com/nielsenwire/consumer/smartphones-to-overtake-feature-phones-in-u-s-by-2011/>
2. Study (2009) run across global support contracts operated by WDSGlobal on behalf of mobile carriers and OEM.
3. Source: <http://www.yankeegroup.com/ResearchDocument.do?id=51443>
4. Source: Crowd Science (2010)
5. Source: WDSGlobal (Mar 2010)
6. Source: <http://www.telecomasia.net/content/china-mobile-triple-handset-subsidies-report>
7. The data used in this analysis is displayed as a percentage of all tech support calls taken in a 12 month period (Mar 2009-Feb 2010) by WDSGlobal across multiple contracts and on a global basis. Handsets included in this: Apple (iPhone 3G, iPhone 3GS); Nokia (N97, N96, E75, E71, 5800 Xpress) BlackBerry (Storm 9500, Pearl 8110, Curve 8900, Bold 9700, Bold 9000).
8. Source: WDSGlobal (2007)
9. Source: Supporting Complex Mobile Devices - WDSGlobal (2008)
10. Source: Wal-Mart (2009)



www.wdsglobal.com

The wireless industry's only provider of specialist managed services
dedicated to improving the user experience.

WDSGlobal is the trading name of Wireless Data Services Ltd. registered in England and Wales (company number 01714719). Registered address - Wireless Data Services Ltd., Alder Hills Park, 16 Alder Hills, Poole, Dorset, BH12 4AR, UK. VAT number GB 911330278

While every care has been taken to ensure that the information in this document is correct, WDSGlobal cannot accept (and hereby disclaims) any responsibility for loss or damage caused by errors or omissions. All rights reserved. No part of this document may be reproduced without the prior permission of WDSGlobal. Copyright: WDSGlobal 2010