Global Smartphone Market Analysis and Outlook: Disruption in a Changing Market

June 2014
1: Executive Summary

The global smartphone market has witnessed extraordinary growth in recent years, with shipments rising by 40 percent in 2013 to exceed the 1 billion unit threshold and $266 billion in value. CCS Insight forecasts smartphone shipments of 1.89 billion units by 2018.

However, explosive growth has been accompanied by significant disruption. Large Web players are seeking to embrace the advantages that mobile delivers in the areas of engagement, context, connectivity and price compared with the PC-based gateways that have defined their businesses until now.

At the same time, Apple has redefined the hardware business model; Samsung has built a substantial advantage thanks to the scale of its operations; and the barriers to entry have fallen thanks to factors such as the rise of the Android operating system and numerous reference design platforms that enable a thriving manufacturing community, most notably in Shenzhen, China.

This report assesses the dynamics that are facilitating continued disruption in the global smartphone landscape and the factors that will drive further change over the next three to five years.

CCS Insight concludes that it is myopic to evaluate the mobile phone and smartphone markets and their value creation in isolation. They must be considered alongside Web-based ecosystems, a new wave of content and services, and convergence with other established and emerging hardware segments.

This has two consequences. Firstly, it means that the smartphone market is as dynamic as ever and is far from the permanent “two-horse race” between Apple and Samsung that is depicted by some industry commentators. Furthermore, although a duopoly exists between Android and iOS at an operating system level, fragmentation caused by Chinese government regulation and ecosystem growth on top of Android means the competitive significance of this duopoly is declining.

Secondly, success in the smartphone market and the way in which value is extracted is fundamentally changing.

This report outlines the three dominant profiles that CCS Insight believes will define success over the coming four years. These are as follows:

- A broader business model such as advertising or retail that mobile extends and enriches thanks to its advantages of reach, engagement, context, connectivity and increasing affordability.

- A parallel business that reinforces the profit margin made on hardware. Increasingly this is in the realm of content and services.

- Substantial advantages of scale, supply chain and costs that enable profitable competition using a margin-based hardware model.
2: Global Smartphone Market Size and Value

Total mobile phone shipments (that is, sales from manufacturers to the distribution channel, also referred to as "sell in") in 2013 reached 1.83 billion units globally, a year-on-year increase of 6 percent from 1.73 billion units in 2012.

Although plenty of growth remains in the smartphone segment, growth as a whole is slowing. Total handset market growth of 6 percent in 2013 was down from 9 percent in 2012 and 13 percent in 2011.

Smartphone shipments exceeded the 1 billion unit mark for the first time in 2013, reaching 1.03 billion units and accounting for 56 percent of total mobile phone shipments. This represented growth of 40 percent on 734 million units in 2012. Yet smartphone shipment growth was down from 46 percent in 2012 and is forecast to slow to 21 percent in 2014 (see Section 6, Market Forecasts and Assumptions, in this report).

CCS Insight estimates the sell-in value of the mobile phone market in 2013 at $303 billion, up 15 percent from $265 billion in 2012. Of this the mobile phone businesses of Apple and Samsung accounted for 35 percent and 39 percent respectively.

Although mature markets such as North America and some Western European markets are seeing fresh impetus from network operators’ early upgrade programs, smartphone growth in these markets is now heavily driven by replacement sales. CCS Insight estimates replacements rates in 2014 were 60 percent of the installed base in 2013 in North America, and 40 percent of the installed base in 2013 in Western Europe.

Smartphone growth is now heavily dependent on emerging markets, notably China. China accounted for mobile phone shipments of 385 million units in 2013, or 21 percent of the global total. Smartphone shipments in 2013 approached 300 million, or 29 percent of global smartphone shipments.

Figure 2-1 illustrates mobile phone shipments by category over the past five quarters.

Table 2-1 provides further details of the global market in 2012 and 2013.
<table>
<thead>
<tr>
<th>Region</th>
<th>2012 Shipments (Millions of Units)</th>
<th>2013 Shipments (Millions of Units)</th>
<th>Growth in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Smartphones</td>
<td>Non-Smartphones</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>201</td>
<td>127</td>
<td>74</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>173</td>
<td>68</td>
<td>106</td>
</tr>
<tr>
<td>Western Europe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>184</td>
<td>119</td>
<td>64</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>111</td>
<td>44</td>
<td>67</td>
</tr>
<tr>
<td>Middle East and Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>279</td>
<td>76</td>
<td>203</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>777</td>
<td>301</td>
<td>476</td>
</tr>
<tr>
<td></td>
<td>337</td>
<td>168</td>
<td>168</td>
</tr>
<tr>
<td>India</td>
<td>213</td>
<td>43</td>
<td>170</td>
</tr>
<tr>
<td>Asia-Pacific developed markets</td>
<td>92</td>
<td>63</td>
<td>29</td>
</tr>
<tr>
<td>Asia-Pacific emerging markets</td>
<td>135</td>
<td>27</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>1,725</td>
<td>734</td>
<td>990</td>
</tr>
</tbody>
</table>

Table 2-1. Mobile Phone Shipments by Region, 2012 and 2013
Source: CCS Insight
3: Competitive Landscape Dynamics

Overview
Recent years have witnessed a fundamental shift in the structure and dynamic of the global smartphone landscape. Profit margins have followed a similar if not worse trajectory to those in the PC industry and the strategic importance of mobile technologies has seen the smartphone market become incrementally more complex and competitive.

Large Web players are seeking to embrace the advantages mobile devices offer in terms of engagement, context, connectivity and price compared with the PC-based gateways that have come to define their businesses. This is causing mass disruption as mobile becomes a subsidised channel for the extension of business models in advertising and retail beyond traditional hardware margin-based businesses.

Apple is a notable exception to this dynamic, but has nonetheless created an ecosystem in which its strength in content and services is helping to create industry-leading profit margins for its hardware.

In addition, barriers to entry have fallen dramatically, enabling a "long tail" of emerging manufacturers that are collectively becoming a significant force. They are steadily expanding beyond their heartland of Shenzhen, China, exploiting the advantages of low cost, the scale of their home market and their closeness to the supply chain.

This has caused mass disruption. A host of established phone-makers, including Nokia, Motorola, BlackBerry, LG and HTC have been squeezed between the emergence of Chinese manufacturers, the ecosystem-based business models of Apple, Amazon, Baidu, Google, Microsoft, Tencent and others and the unrelenting advantage that Samsung derives from the scale of its operations.

However, the smartphone market is still experiencing healthy (but slowing) market growth. Shipments will reach 1.24 billion in 2014, an increase of 21 percent. The value of the smartphone market will reach slightly less than $300 billion.

CCS Insight believes the common assumption that the smartphone landscape is now stable and will continue to be dominated by Apple and Samsung over the next four years is a gross mischaracterisation. The dynamics explored in Sections 3, 4 and 5 of this report illustrate that significant scope remains for further mass disruption.

Smartphone Market Dynamics
Outlined below are the key dynamics CCS Insight believes characterise the smartphone landscape today.

The mobile phone industry is a duopoly. In 2013, Apple and Samsung captured two-thirds of industry revenue, and practically all the profit generated by the top 10 manufacturers. However, both companies are set to face increased margin pressure as competition increases and the collective power of the Android ecosystem continues to close the gap on Apple and Samsung's ability to differentiate. CCS Insight does not believe that the same dynamic will persist in four years. However, Apple is likely to retain its leadership in value extraction thanks to its ecosystem advantage. This will prove far harder for Samsung to emulate.

Despite intense competition, there is high financial concentration in one company. A third of the value of the smartphone market today is captured by Apple, which had a 28 percent operating margin in 2013, while the majority of other first- and second-tier manufacturers — with the exception of Samsung — hovered around the zero profit line. This
means that Apple currently holds a combination of assets that allow it to differentiate its products and command very significant premiums in price and margin. With one player maintaining such prices at the high end of smartphones, and Samsung acting very aggressively in all other segments, it is tough for other competitors that lack the advantages conferred by scale or an ecosystem.

**Samsung dominates the Android ecosystem.** Samsung’s winning strategy has three elements that competitors cannot easily replicate: huge economies of scale and favourable cost structure owing to vertical integration; highly aggressive pricing; and enormous marketing expenditure. However, Samsung is also facing a significant transition as it tries to follow Apple and create an ecosystem advantage through content and services that can reinforce hardware margins. This conflicts with its heavy reliance on Android. CCS Insight believes Samsung is at a strategic juncture, similar to Nokia in 2006. It must diversify to add shareholder value given that market share and margins are likely to come under mounting pressure in the short to medium term. Samsung’s continued dominance is not guaranteed.

**A large number of Android licensees are not profitable.** This is for two main reasons: they struggle to achieve any meaningful product differentiation, and they cannot compete against Samsung’s scale, supply chain advantage and marketing machine.

**But there are exceptions to this rule.** The first is those companies that are emerging with significant advantages in terms of scale. Global manufacturers with diversified businesses will begin to challenge Samsung’s supremacy in the same way Samsung targeted Nokia. The second is innovative new manufacturers such as Xiaomi that are using hardware to drive a business model not connected to hardware margins. The third exception is the long tail of manufacturers, predominantly from Shenzhen, that are maximising low barriers to entry and low labour and production costs.

**China’s smartphone market is providing a platform for broader growth and expansion.** Chinese manufacturers benefit from enormous scale in their home market. China will see shipments of 350 million smartphones in 2014 and China Mobile alone is targeting sales of 100 million LTE devices in 2014. This is enabling Chinese manufacturers to quickly expand to overseas markets. This is being led by large companies that are exploiting strengths in existing businesses such as as network infrastructure and PCs. For example, Lenovo’s acquisition of Motorola Mobility will enable it to quickly address smartphone markets beyond China, Russia and pockets of Latin America. At the other end of the spectrum are the multitude of Chinese manufacturers, ranging from larger more-established players such as Gionee, Oppo, Yulong and Xiaomi to an abundance of smaller but growing operations.

**Low barriers to entry favour further disruption.** China-based manufacturing has benefited from two trends that will continue to ensure low barriers to entry. The first is the advent of Android. Google’s mobile operating system democratised software and obliterated Nokia and Samsung’s competitive advantage by providing an open-source solution for mass adoption and customisation. The second trend is the advent of turnkey reference designs from chipset companies such as MediaTek, Qualcomm and Spreadtrum. They provided fully packaged solutions with certified, tested components that enabled quick design, manufacturing and delivery of products.

**Established manufacturers are being squeezed.** Disruption from companies such as Amazon, Apple, Google, Microsoft and others with the benefit of supporting ecosystems, along with the growth of Chinese manufacturing, is squeezing a host of phone-makers. Motorola and Nokia have already been hit; BlackBerry, LG and HTC face continued problems with their margins because they lack advantages in terms of cost, scale, an ecosystem or business model. CCS Insight believes Samsung is not immune to this pressure in the medium term unless it can transition its business and sharpen its capability in software, content and services.
Smartphone designs have reached a plateau. Single-button, monobloc designs have become the norm in all sizes ranging from four-inch to seven-inch screens at all price points. In some ways this is a necessary phase that allows all types of user to buy with confidence, but it also means that innovation in hardware design is at a historic low. This is making it easier for low-cost manufacturers to expand their presence.

The importance of high marketing expenditure has risen strongly. With a lower level of hardware differentiation, leading players in Western markets are putting much more investment behind brand and advertising. This was initiated by Apple with the iPhone and has been escalated by Samsung. It presents a significant obstacle for other manufacturers. Moreover, investments are not limited to above-the-line spending. Cooperative marketing support for carriers is commonplace in North America and some Western European markets, exacerbating the challenge for sub-scale players.

Over the past three years the market has polarised. The combination of growing smartphone sales in emerging markets and the subsidisation of devices in many mature markets has polarised the market. Demand has shifted to either end of the market and the mid-tier has shrunk. This has meant scale has become increasingly difficult to sustain for manufacturers targeting the midrange and high end of the market. However, this is changing as carriers experiment with alternatives to device subsidies and demand in emerging markets shifts to higher-value replacements. This benefits larger challengers from China as they look to build up shipment volumes and gain the all-important scale to compete against Samsung.

The smartphone market is becoming part of a bigger device continuum. Although the characteristics of smartphone distribution remain very different to those for tablets and "two-in-one" PCs, several manufacturers are increasingly viewing devices as a continuum. Samsung is a clear example of this approach. It offers considerable economies of scale, and advantages in supply chain, branding and delivery of content and services for manufacturers such as Apple, Samsung, Lenovo and others that produce high volumes of smartphones, tablets and PCs. In addition, the distribution channel is set to see convergence and consolidation in many markets, particularly if carriers maintain their moves away from subsidy.

The importance of intellectual property is paramount. Strength in intellectual property has become a critical component for success in the global smartphone market. This is essential at multiple levels. Android has a high economic cost connected with patent licensing, so a broad portfolio of intellectual property can help reduce the bill of materials and increase margins, in addition to constituting a revenue source in its own right. More importantly, strength in intellectual property rights can function as a deterrent against infringement claims. This is why most litigation surrounding Android has focussed on its phone-maker licensees, rather than Google itself.

Figure 3-1 shows phone manufacturers' operating margins over the past five quarters; Table 3-1 details manufacturers' performance in 2013.
Figure 3-1. Phone manufacturers’ operating margin 4Q12-4Q13
Source: CCS Insight
<table>
<thead>
<tr>
<th></th>
<th>Units (M)</th>
<th>Market Share</th>
<th>Units (M)</th>
<th>Market Share</th>
<th>Units (M)</th>
<th>Market Share</th>
<th>Mobile Phone Revenue $B</th>
<th>Operating Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>445</td>
<td>24.3%</td>
<td>309</td>
<td>30.0%</td>
<td>137</td>
<td>16.9%</td>
<td>103.7</td>
<td>18.7</td>
</tr>
<tr>
<td>Nokia</td>
<td>250</td>
<td>13.6%</td>
<td>31</td>
<td>3.0%</td>
<td>219</td>
<td>27.2%</td>
<td>14.2</td>
<td>-0.8</td>
</tr>
<tr>
<td>Apple</td>
<td>153</td>
<td>8.4%</td>
<td>153</td>
<td>14.9%</td>
<td>-</td>
<td>-</td>
<td>94.1</td>
<td>26.7</td>
</tr>
<tr>
<td>LG</td>
<td>68</td>
<td>3.7%</td>
<td>48</td>
<td>4.6%</td>
<td>20</td>
<td>2.5%</td>
<td>11.9</td>
<td>0.1</td>
</tr>
<tr>
<td>ZTE</td>
<td>63</td>
<td>3.4%</td>
<td>42</td>
<td>4.1%</td>
<td>20</td>
<td>2.5%</td>
<td>3.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Huawei</td>
<td>59</td>
<td>3.2%</td>
<td>52</td>
<td>5.1%</td>
<td>7</td>
<td>0.8%</td>
<td>94.1</td>
<td>26.7</td>
</tr>
<tr>
<td>Lenovo</td>
<td>46</td>
<td>2.5%</td>
<td>46</td>
<td>4.5%</td>
<td>-</td>
<td>-</td>
<td>4.4</td>
<td>-23.4</td>
</tr>
<tr>
<td>Sony</td>
<td>38</td>
<td>2.1%</td>
<td>38</td>
<td>3.7%</td>
<td>-</td>
<td>-</td>
<td>6.9</td>
<td>-1.9</td>
</tr>
<tr>
<td>Motorola</td>
<td>24</td>
<td>1.3%</td>
<td>24</td>
<td>2.3%</td>
<td>-</td>
<td>-</td>
<td>4.4</td>
<td>-23.4</td>
</tr>
<tr>
<td>HTC</td>
<td>23</td>
<td>1.3%</td>
<td>23</td>
<td>2.3%</td>
<td>-</td>
<td>-</td>
<td>4.9</td>
<td>-1.9</td>
</tr>
<tr>
<td>BlackBerry</td>
<td>18</td>
<td>1.0%</td>
<td>18</td>
<td>1.8%</td>
<td>-</td>
<td>-</td>
<td>4.9</td>
<td>-35.2</td>
</tr>
<tr>
<td>Others</td>
<td>645</td>
<td>35.2%</td>
<td>243</td>
<td>23.6%</td>
<td>403</td>
<td>50.0%</td>
<td>303.0</td>
<td>-1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,833</td>
<td>100.0%</td>
<td>1,027</td>
<td>100.0%</td>
<td>806</td>
<td>100.0%</td>
<td>303.0</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 3-1. Mobile Phone Shipments, Revenue and Operating Profit by Manufacturer, 2013
Note: Revenue and operating profit attributable only to the mobile phone part of the company’s business. ZTE, Huawei and Lenovo financial information not available.
Source: CCS Insight
4: Operating Systems and the Rise of the Ecosystem

This section explores the dynamics of the mobile operating system landscape. Table 4-1 shows smartphone shipments in 2012 and 2013 by operating system.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>2012 Units (M)</th>
<th>2012 Market Share</th>
<th>2013 Units (M)</th>
<th>2013 Market Share</th>
<th>Growth in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Android</td>
<td>517</td>
<td>70%</td>
<td>813</td>
<td>79%</td>
<td>57%</td>
</tr>
<tr>
<td>iOS</td>
<td>136</td>
<td>19%</td>
<td>153</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Windows Phone</td>
<td>16</td>
<td>2%</td>
<td>33</td>
<td>3%</td>
<td>105%</td>
</tr>
<tr>
<td>BlackBerry</td>
<td>33</td>
<td>4%</td>
<td>19</td>
<td>2%</td>
<td>-42%</td>
</tr>
<tr>
<td>Symbian</td>
<td>23</td>
<td>3%</td>
<td>1</td>
<td>0%</td>
<td>-96%</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td>1%</td>
<td>8</td>
<td>1%</td>
<td>-15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>734</strong></td>
<td><strong>100%</strong></td>
<td><strong>1,027</strong></td>
<td><strong>100%</strong></td>
<td><strong>40%</strong></td>
</tr>
</tbody>
</table>

Table 4-1. Smartphone Shipments by Operating System, 2012-2013
Source: CCS Insight

**Android dominates in volume and market share terms.** CCS Insight forecasts that Android smartphone shipments will reach 1 billion in 2014. This equates to growth of 23 percent year-on-year and a market share of 80 percent in smartphones alone. Total activations have exceeded 1 billion and daily activations were reported by Google as running at 1.5 million in July 2013. Diversification into other segments from wearables to in-vehicle entertainment, set-top boxes and kitchen appliances stands to further broaden Android’s reach and reinforce the Android ecosystem (although note the caveat to this below). This dominance has resulted in a significant differentiation challenge for manufacturers and is a big contributor to the homogeneous landscape discussed in Section 3.

**Apple maintains a high-tier stranglehold.** iOS accounted for 19 percent of smartphone shipments in 2013. Although it has fallen significantly behind Android in recent years it remains the leading priority for a large proportion of developers because of its premium positioning, the profile of its users and their high level of engagement. This compares with Android, which is spread across a far broader range of prices and consequently has a more diverse customer profile.

**Windows Phone momentum is increasing slowly.** Windows Phone remains a distant third in smartphone operating systems but it cannot be dismissed given the importance of mobile to Microsoft and in light of its recent investment in Nokia’s devices and services division. Although Microsoft has struggled for over 15 years in mobile software, the decision to remove the Windows licence fee for small devices is indicative of a renewed commitment to move away from licence revenue to subscription services under Satya Nadella. Windows Phone and Microsoft’s hardware capability are central pillars in realising this vision. We predict modest growth for Windows Phone.

**Android has become a collection of platforms.** Android software development has become characterised by a fragmented set of application programming interfaces, each addressing the needs of a type of device. This means Android no longer represents a single target for developers or manufacturers. Given that Android works on devices costing less than $40 and those priced over $500, Google has walked a tightrope to ensure a careful balance between excessive fragmentation and the risk of hindering new innovation. What has resulted is a compromise. It should be noted that we do not subscribe to the view that Android has been crippled by the issue of multiple successive versions of the platform; in addition, the forking of Android code by other companies such as Amazon is a different issue, covered below.

**Google has created a two-tier structure for Android.** Developers must design their applications according to their requirements. They either prioritise reach and address as
wide a range of devices as possible, or they prioritise the experience by using APIs only available in more-recent releases. For example, in May 2014, the Gingerbread release still accounted for 16 percent of devices accessing the Play store. CCS Insight believes the actual number is significantly higher given the volume of Android devices, particularly in China, that do not run Google services or access the Play store. The prevalence of Gingerbread is the result of its suitability for cheaper devices and the slower replacement rates in emerging markets and low-end segments.

*Android’s dominance will increasingly fail to translate to Google dominance.* We estimate that between 20 and 25 percent of Android device shipments do not feature Google services such as search, Maps, Gmail and the Play store. The proliferation of forked variants of Android and the Chinese government’s blocking of Google search in China is producing a growing proportion of Android devices that pose a challenge for Google’s open-source Android model. Such devices provide Google with little or no revenue or data and provide a platform for services from Google’s competitors. We estimate this could increase to over 30 percent in 2015. It also raises a question about how Google will control Android in the future as policing the platform through access to Google services will prove increasingly ineffective.

*The mobile software landscape is far more open than it appears.* The dynamic above means that Android is fast becoming the de facto building block for the consumer electronics industry upon which a proliferation of others are creating and extracting value. In the same way that many cars share a chassis, devices share the same base-level software. But like cars, the end product looks very different. Although the hardware is becoming increasingly homogeneous, differentiation stems from the software, services, applications and content delivered on top.

*Fragmentation (and value) has moved up the software stack.* Fragmentation is now proliferating further up the software stack as players such as Amazon, Alibaba, Baidu, Microsoft, Tencent, Xiaomi and others build their own ecosystems, many utilising Android as the building block.

*A war of ecosystems rages.* The “war of ecosystems” set out by Nokia CEO Stephen Elop was an accurate yet simplistic assessment based on the battle between mobile operating systems. However, this is not a dynamic constrained to those with assets in mobile software, and it is not being driven only by a collection of companies from the US west coast. The diversification of large Web platform businesses including Alibaba, Baidu, Tencent and Yandex, in addition to current and future ecosystem investment from manufacturers such as Samsung, Huawei, Lenovo and Xiaomi, means the war of ecosystems is escalating on a global basis. As stated above, in many cases Android is simply a building block for other service offerings.

*Expect change and disruption.* Widespread investment from multiple parties but led by large Web players is generating the next wave of disruption to the mobile industry. CCS Insight predicts that the next three years will be characterised by the expansion of a number of largely Chinese Web companies (Alibaba, Baidu, Tencent and others). Buoyed by significant growth in their home market and in some cases cash-rich from IPOs, expansion into Western markets will be driven heavily by acquisition. We expect this to have a seismic impact on the mobile industry that will be no less significant than Apple and Google’s investment to date.
5: Carrier and Distribution Dynamics

Mobile network operator subsidy models are changing. Although subsidies are not disappearing, carriers have been forced to innovate. Early upgrade plans initiated in the US (for example, AT&T Next and Verizon Edge) have had good early success. AT&T has stated that its Next initiative accounted for more than 40 percent of smartphone gross additions or upgrades during 1Q14. This stands to reinvigorate replacement rates but also slowly begin to change the smartphone subsidy dynamic.

Smartphone market structure in unsubsidised markets differs substantially. Markets that do not subsidise handsets are widely characterised by a more open supply profile and higher overall levels of competition. A good example of this is Windows Phone's higher market share in Italy than in heavily subsidised markets like the UK or US. Subsequently, such markets have lower barriers to entry for new entrants. Should subsidy continue to slowly erode in other markets, the trend stands to increase competition and encourage the emergence of new players.

Shifts away from subsidy could have far-reaching consequences. Network operators' complaints that current subsidy levels are unsustainable are understandable given the time it takes for a subscriber to become profitable. Nonetheless, subsidy is a key means by which the carrier retains control of the customer relationship. If subsidy disappears it is likely to result in a far more open handset distribution model. This would open the door for a player such as Google or Apple to start selling directly to customers and circumvent network operators. This would also be to the advantage of manufacturers with established, operator independent channels to market.

Carrier commitment to a third platform is questionable. Despite operators' universal promotion of the need for a third platform (including Windows Phone, Firefox OS, Tizen and others) to increase competition and reduce the Android and iOS duopoly, CCS Insight questions the collective commitment. Specifically, we question the appetite for the investment needed to make the vision a reality. Android works in carriers' favour owing to the abundance of competition among manufacturers. The dominance of Apple and Samsung, rather than of Android and iOS, is therefore the bigger concern and is likely to result in a greater focus on the extension of handset supply rather than new platform investment.
6: Market Forecasts and Assumptions

Market Forecasts

Figure 6-1 shows our forecast of global phone shipments to 2018. Figure 6-2 breaks it down into smartphones and non-smartphones.

Figure 6-1. Global mobile phone shipments and growth rate, 2006-2018
Source: CCS Insight

Figure 6-2. Global mobile phone shipments by type, 2008-2018
Source: CCS Insight

Figure 6-3 shows our forecast of global sell-in value for mobile phones; Figure 6-4 gives a regional breakdown of our smartphone shipment forecast. Figure 6-5 shows our forecast of smartphones in use by 2018.
Figure 6-3. Global mobile phone sell-in value by type, 2012-2018
Source: CCS Insight

Figure 6-4. Smartphone shipments by region, 2012-2018
Source: CCS Insight

Figure 6-5. Smartphone installed base as a percentage of mobile phone base by region, 2013 and 2018
Source: CCS Insight
Forecast Assumptions and Further Findings

The trends and market dynamics explored above underpin the forecasts set out in this section of the report. Below are the top-level assumptions that support the forecasts.

Mobile phone volumes are expected to keep growing over the next four years but the growth rate will slow considerably. New users will account for only 7 percent of shipments at the end of the forecast period. The number of mobile phone shipments worldwide will grow from 1.83 billion units in 2013 to 2.29 billion units in 2018: a compound annual growth rate (CAGR) of 4.5%. Smartphone shipments will grow at a CAGR of 13% between 2013 and 2018, to 1.89 billion units in 2018, 83 percent of total mobile phone shipments.

Developed markets will grow slowly, with Western Europe gradually recovering toward the volumes of the pre-2008 crisis. An LTE push by carriers is expected to be a key driver of smartphone replacements in tandem with continued emphasis on early-upgrade plans designed to reduce the subsidy burden.

Just 25 percent of smartphones will be shipped to mature markets in 2018. Emerging markets will bring the vast majority of volume growth, price erosion of entry-level mobile devices making them affordable to a wider addressable market. With Android already available for less than $40 at retail and competition intensifying among component suppliers, smartphones will be the major driver of growth.

The shift to smartphones is expected to continue in all regions. In 2015, developed markets will almost complete their transition to smartphones, with small demand for entry-level phones remaining. This will see mature markets become almost entirely dependent on replacements and will raise the stakes for growth in emerging markets. Even on a global basis, 2015 will see the installed base of smartphones overtake that of feature phones.

Speed of smartphone adoption is likely to be determined not just by hardware bill of materials and price point but by parallel business models from the Web that seek to use hardware as a vehicle to deliver advertising and services to users. This will increase pressure on those with traditional hardware margin-based businesses unless they have the benefit of cost or scale. We would also expect efforts from large Web players to address the total cost of phone ownership.

Feature phones will be squeezed significantly, as smartphones push further down below sub-$50 levels seen today.

Strong growth of LTE and TD-LTE handsets is expected in the next five years. CCS Insight forecasts that combined LTE and TD-LTE shipments will reach 0.5 billion units in 2014 and grow to 1.16 billion by 2018. This will be fuelled by intense competition among chipset suppliers as Broadcom, Intel, Marvel, MediaTek, Spreadtrum and others all release LTE platform designs by mid-2015 to compete against Qualcomm.

Android remains the dominant operating system over the forecast period but a growing proportion of shipments do not deliver Google services. The operating system becomes less strategically important over the forecast period as the ecosystem war moves further up the software stack.

Mobile phone sell-in value in 2013 grew by 15% to $303 billion. We expect this to increase to $351 billion by 2017 and then flatten.
7: Conclusions and Implications

The mobile phone and smartphone market has become more competitive, complex and connected over the past three years. Connected not just in terms of connectivity and sensor advancements, but the smartphone segment's interrelationship with other markets and business models.

It is myopic to discuss the mobile phone and smartphone markets and their value creation, either directly or indirectly, in isolation. Burgeoning ecosystems from the Web, a new wave of content and services and convergence with other established and emerging hardware segments are all affecting how value is created and extracted from the smartphone market.

This has two fundamental consequences:

- Firstly, it means that the smartphone market is as dynamic as ever and is far from the permanent two-horse race between Apple and Samsung that is depicted by some industry commentators. In addition, although an operating system duopoly exists between Android and iOS, fragmentation caused by Chinese government regulation and ecosystem growth on top of Android means the competitive significance of this duopoly is declining. Android's dominance does not translate directly into dominance for Google. The complexity of the smartphone market and its broader relationship with other technology segments and business models means change is likely to be abrupt and substantial.

- Secondly, success in the smartphone market and the way in which value is extracted is fundamentally changing.

This raises questions about which attributes will define success over the four years of our forecast period given the challenges facing an abundance of traditional mobile phone manufacturers. CCS Insight believes successful companies will ultimately conform to one or more of these profiles:

- The company has a broader business model such as advertising or retail that mobile extends and enriches thanks to its advantages of reach, engagement, context, connectivity and increasing affordability. Good examples are Amazon and Xiaomi; both supply hardware but margin is largely derived elsewhere.

- The company has a parallel business that reinforces the profit margin made on hardware. Increasingly this is in the realm of content and services. The best example here remains Apple but Samsung, Sony and others are striving to emulate Apple's success.

- The company enjoys substantial advantages of scale, supply chain and costs that enable it to compete profitably using a margin-based hardware model. We believe Lenovo in particular is poised to challenge Samsung's dominance in this regard.

These attributes are not mutually exclusive, nor will they characterise all players that participate in the smartphone market over the coming years. The low barriers to entry that have come to typify smartphone manufacturing means the long tail of manufacturers will continue to grow.

However, this long tail will be characterised by extremely low margins for the majority. CCS Insight believes the attributes above will characterise those companies that extract the majority of the value, either directly or indirectly.

Further change and disruption to the smartphone industry is highly likely over the forecast period. Samsung's dominance is set to come under growing pressure from the combined abundance of smaller Chinese players and new manufacturing challengers with mounting
scale and cost advantages. Furthermore, the necessity for diversification will see Samsung face mounting competition from Web players from both East and West. This too will affect Apple: its successes in delivering content and services and in hardware integration will determine its progress and the speed at which it too feels growing pressure on profit margins.