

Technology, Media & Telecommunications Practice

Outsmarting the 5G smartphone challenge: How telcos can reinvent their handset business

With device-related expenses already straining margins, the 5G upgrade cycle could prove even tougher for operators—unless they take a comprehensive, new approach to managing consumer hardware costs.

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For telecom operators in mature wireless markets, the imminent 5G smartphone upgrade cycle could prove to be a mixed blessing. This migration is necessary to enable expansive 5G network experiences, yet it will be more expensive than previous consumer-hardware shifts. At a time when smartphone-related expenses already strain their profit margins, most operators can't afford to shoulder the further financial burden of improving smartphone affordability for consumers.

That's why operators must alter how they approach smartphones as part of their business. The secret to unlocking value from smartphones lies in adopting an end-to-end (E2E) device life-cycle management approach to managing key obstacles while innovating with both traditional and still relatively underexplored levers such as re-commerce, insurance, and phone subscriptions, all pursued in tandem. Executed correctly, E2E device life-cycle management can secure significant financial benefits, both in earnings before interest (EBITDA) (up to 8 percent improvement) and customer lifetime value (CLV) (up to 20 percent improvement), by cutting costs and by growing the top line through newer subscribers, increased loyalty, and higher popularity of additional services and accessories.

Rising smartphone costs drive the need for a new approach

Global smartphone sales have plateaued at around 1.4 billion¹ new units per year due to multiple factors. These include high penetration levels, longer upgrade cycles that now stand at 30-plus months, a shift from flashy hardware innovation to less visible software advances, and a more established secondary market for used phones. However, industry analysts expect that 5G will reverse this trajectory and push new phone sales growth for top-tier OEMs by 2–5 percent.²

One potential obstacle to even higher growth is the fact that 5G phones will almost certainly be even costlier to produce than 4G models, by up to 20–30 percent.³ This partly reflects more expensive

modem and radio-frequency components, at least until 5G smartphone design and production scales, and it also continues the recent trend, with average selling prices for flagship devices growing at a 21 percent compound annual growth rate (CAGR) from 2014 to 2018.⁴

Given this dynamic, ensuring consumer affordability is almost certain to become a costlier proposition for operators. Rising smartphone subsidy expenses already are starting to become unsustainable, with one North American operator experiencing a 30 percent increase in four years, and further increases would generate a substantial need for additional capital just as operators require more funds for their 5G network build-out. For example, in 2019, South Korean operators registered a surge in smartphone-related costs to enable their first million 5G connections, and these costs were higher than for the last wave of 4G migrations in 2011.

In the face of these challenges, operators need to revisit their strategies for managing overall smartphone expenses, an often-overlooked part of their business. Smartphones already occupy up to a 50 percent share of a subscribers' telecom wallet—the money customers spend on both wireless services and devices—so transferring more cost to the customer isn't a viable option. And, operators cannot just retreat from smartphone-related customer offers because smartphones will remain a critical source of subscriber stickiness. Our work consistently highlights that operators experience lower monthly churn from high-value customer segments in which the subscribers purchase their smartphones from the operator than from so-called BYOD (bring your own device) customers who acquire their phones through other channels. Equally important, smartphone offers help drive new subscriber growth.

A new approach: E2E device life-cycle management

Operators are adept at tackling selective areas of smartphone management. At most, procurement

¹ "China's surge into 5G will push the worldwide smartphone market back to growth in 2020, according to IDC," IDC, November 26, 2019.

² "Can 5G stimulate handset replacement?," UBS Q-Series: Global Telecom and Technology, September 27, 2019.

³ Ibid.; "5G is here: Early insights from our experts," IHS Markit, 2019.

⁴ "Worldwide quarterly mobile phone tracker," IDC, idc.com.

has assumed a broader role to deliver consistently bigger rebates from OEMs, and the finance team incrementally improves cash holdings through better payment terms and receivables factoring.⁵ It is rare, though, to see operators break through silos and push for smartphone excellence across functions.

This is understandable. Maximizing the contributions of smartphones to the overall profits and losses (P&L) isn't always top of mind for each or possibly any single function. While most operators have a dedicated lead for core functions such as network or customer care, they rarely have one for smartphones, even though it drives equal if not more

economic impact than other categories. At best, the head of procurement or the head of the wireless business will possess tangential oversight on all things smartphone.

Thus, the first step to an E2E device life-cycle management approach involves establishing a shadow smartphone P&L overseen by a committed senior executive that reflects the different drivers of revenue and costs associated with smartphones.

Seven key activities define E2E device life-cycle management (Exhibit 1).

Exhibit 1

By using a wide range of new levers, operators can turn their handset business from a financial challenge into a competitive advantage.

End-to-end device life-cycle management activities

Activity	Description	Top levers
Fund	Finding innovative ways to reduce the capital burden from smartphones	<ul style="list-style-type: none"> • Payment securitization • Financing partnerships • Consignment models
Range	Remaking smartphone portfolios/offers as a source of competitive advantage	<ul style="list-style-type: none"> • CLV¹-based portfolio-selection methodology • "Non-OEM" products (eg, used phones, white-label accessories)
Buy	Developing a next-generation procurement-partnership model with strategic OEMs	<ul style="list-style-type: none"> • Analytics-based S&OP² process • "Virtual vertical" model to marketing
Distribute	Optimizing warehousing and transportation to ensure the lowest cost, maximum inventory turns, and highest in-stock rates	<ul style="list-style-type: none"> • Supply-chain network consolidation • Route optimization • Lean warehousing • Cleansheet labor productivity
Sell	Increasing overall CLV and ancillary revenue while delivering on consumer affordability	<ul style="list-style-type: none"> • Phone subscriptions • Analytics-based hardware upgrade • Insurance, accessory, and connected-devices sales • Digital and retail distribution optimization
Return	Improving the returns process from both a consumer and operational standpoint	<ul style="list-style-type: none"> • Automated retail diagnostics and collections • Collection-point optimization • Rules-based engine for routing returns
Repair/resell	Driving financial gains from a smartphone's 2nd and 3rd lives	<ul style="list-style-type: none"> • Re-commerce strategy (2nd-life use) • Same-unit repair • Parts and service negotiation

Digital and advanced analytics

¹Customer lifetime value.

²Sales and operations planning.

⁵Receivables factoring is a financial transaction in which a company sells its accounts receivable to a financing company specializing in buying receivables at a discount.

Our work with operators highlights the improvements several market leaders have registered across all these activities and levers that, for example, include:

- **Fund.** Securitization helped one large Japanese operator inject over \$2 billion in immediate cash to its balance sheet.
- **Sell.** An Asia–Pacific operator turned its smartphone P&L from a cost center into a semi-profit center by doubling insurance sales with margins over 50 percent. Another operator went a step further, fighting through initial learning pains to deploy an early version of a phone subscription to realize 5 percent higher CLV.
- **Repair/resell.** A South American operator adopted a dedicated re-commerce strategy to reduce prices by 20 percent on its mid-range smartphones.
- **Use digital and advanced analytics capabilities.** One European operator registered a 3 percent EBITDA improvement by using advanced analytics to increase retention of high-risk subscribers.

When managed right, these levers on their own can increase CLV and EBITDA significantly. Operators employing a combination of these levers have seen up to a 20 percent improvement in CLV and up to 5 percent improvement in EBITDA through a mix of incremental gross adds, lower voluntary churn, lower subsidy operating expenses, lower working capital, and incremental revenue from additional services such as insurance.

But only by employing fully an E2E approach and using all the levers together can operators achieve the maximum return. Many of the levers unlock additional synergies that, for example, relate to subscription and insurance offerings. Our work with operators suggests such a holistic approach can achieve an incremental 2–3 percent improvement in EBITDA.

Key levers for a smarter smartphone strategy

Fund: Securitization and financing

For an operator, cash flow would be the principal problem posed by smartphone financing. OEMs require payment for their phones within 30–90 days, while customer payments span 24 months. With prices for premium 5G smartphones expected to be up to \$1,000 for millions of customers, this applies significant pressure on the balance sheet. Up to 10 percent of it can be tied up in receivables for smartphone-related affordability options, such as installment billing.

Though securitization of handset receivables has been around for years, most global operators have only scratched the surface in using the vehicle to gain immediate cash and employ their capital more efficiently.

For investors, these asset-backed securities are a stable, highly rated investment vehicle. Indeed, as a form of consumer debt, smartphone-backed securities are often viewed as higher-quality investments than corporate bonds and incur comparatively lower financing costs. And financing costs can be lowered even further using analytics. One North American operator trached off its higher prime segments to improve the efficiency of securitization and achieve a cost of capital of 2 percent.

Another capital-infusing avenue involves operators off-loading portfolios or tranches of their smartphone-related balance sheet to a financing company, which in turn sells bonds secured on the smartphone receivables to private investors. A global working-capital provider launched a smartphone-focused offering in 2018 and completed a program for a large European operator with nearly \$1 billion in bonds already sold. Financing companies, though, are not cheap; typically, the operator has to take a 3–5 percent haircut on assets and pay a 3–4 percent management fee.

Sell: Insurance, accessory, and connected devices sales

Operators can drive ancillary revenues around smartphones by increasing the attachment rates for insurance, accessories, connected devices, and other services. Many operators now offer a branded insurance plan that usually is bundled with additional value-added services such as password protection and cloud storage.

Smartphone insurance, in particular, is a fast-growing market estimated at \$10 billion to \$15 billion and growing rapidly at over 10 percent a year.⁶ This growth should be supported by the premium price tags of 5G smartphones, as millions of customers look to de-risk their expensive purchases. Most operators are already set up to manage this growth, having outsourced insurance-related work to specialized providers. But even under an outsourced model, the opportunity for innovation exists. One South American operator worked with its insurance provider to partner with a countrywide network of repair stores to fix 65 percent of phones within five hours to avoid costly smartphone replacements and reduce insurance costs by 25 percent.

Accessory and connected device sales also are under-explored margin pools for most operators. However, a mid-size European operator increased smartphone accessory sales by 150 percent within eight months by changing its online buy flow and sales incentives to improve bundling and cross-sell. Another North American operator enhanced margins on accessories by over 20 percent by shifting to private-label manufacturing for brand-agnostic accessory categories such as cases and covers. As 5G penetration scales and newer use cases emerge, especially around consumer IoT applications, operators will need to go beyond smartphones and related accessories and expand into connected devices. By doing so, they will have a chance to market themselves as the one-stop shop for subscriber hardware needs.

Repair/resell: Re-commerce strategy

Traditionally, the circular/re-commerce economy—use, recycle, reuse, repeat—has focused on larger assets such as cars. However, a circular economy around consumer electronics, specifically smartphones, is developing fast. By some estimates, the global used smartphone industry is worth \$30 billion to \$50 billion.⁷ That's still one-tenth the new smartphone industry, but it is growing three times faster. Further growth potential is constrained by industry fragmentation and associated value loss, as supply takes on average seven touchpoints to find corresponding demand.

But telecom operators are best positioned to play in the re-commerce economy. They are uniquely capable of generating both used-phone supply and demand. With over a billion functional phones sitting idle in people's drawers and many 3G and 4G phones expected to be traded in as part of the 5G migration, operators can capitalize on this expanding pool of supply to drive new subscriber growth and consumer affordability. Seizing this opportunity requires a well-defined re-commerce strategy that boosts and leverages a device's residual value⁸—the market price for a used smartphone at any point after its launch—to potentially drive three major benefits (Exhibit 2).

Operators also can serve as strategic partners to OEMs to help distribute used phones in developing markets. OEMs would like to grow their market penetration in developing markets such as Africa but don't want to lose their brand positioning due to uncontrolled reselling of used phones, especially refurbished ones.

Sell: Phone subscriptions

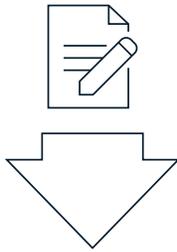
Amid a wide-ranging consumer shift to subscription services for any number of products, phone subscriptions are generating more C-suite discussions as an innovative consumer value proposition. Leading OEMs and operators

⁶ Neil Mawston, "Smartphone insurance trends," Strategy Analytics, August 5, 2019.

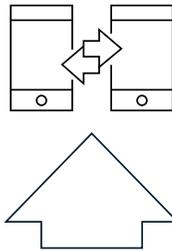
⁷ Anthony Scarsella and William Stofega, "Worldwide used smartphone forecast, 2019–2023," IDC, December 29, 2019, idc.com.

⁸ Residual value is a function of device age and condition, source of supply, and end resale channel. At least in the wholesale market, the minimum residual value for premium smartphones can be predicted well in advance and used to inform an operator's game plan.

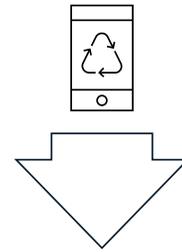
Telecom operators are uniquely positioned to expand the used-phone market, which in turn can help grow their core wireless business in a variety of ways.



Reduce monthly payments on lease-type contracts for 5G smartphones



Offer higher trade-in values for current 4G smartphones



Increase affordability options with a lower-cost, 2nd-life phone portfolio

already are laying the foundation for bundled subscription services in 2020 and beyond that encompass 5G smartphones, WiFi connectivity, connected devices, insurance, and other offerings, such as streaming media.

Phone subscriptions differ from traditional purchase offers principally in pricing, ownership, and upgrade frequency. Under a subscription model, consumers would pay lower monthly amounts to effectively rent devices over a predetermined contract period. Paying to rent is cheaper than paying to own, as most consumers do today, because an operator can pare the monthly cost (by up to 30 percent) by applying the expected residual value when a subscriber returns the phone as a subsidy.

Phone subscriptions also offer consumers the ability to upgrade devices more frequently. A Scandinavian operator migrated most of its base to a phone subscription program that required no down payment, included screen insurance, and allowed for annual upgrades, all at effectively the same cost as a traditional pay-to-own installment plan. It delivered significant churn improvements and market differentiation.

Many operators struggle in their early attempts to design subscription offers. Yet the challenge

lies not in foundational economics but with the quality of execution, including determining the right offer structure, concept testing, modeling, and operational planning to deal with the complexities of residual value management. For instance, one Asia–Pacific operator discovered subscribers were misusing a loophole to get new device replacements for low \$200 deductibles by claiming their devices were lost.

Synergies across levers and activities

Each lever on its own helps improve the financial performance for an operator. But the most marked improvement will be achieved by taking an E2E device life-cycle management approach to drive synergies across the levers and activities.

For instance, phone subscription programs can be expensive to administer due to increased upgrade frequency and operational complexities. But operators typically couple subscription with securitization and re-commerce strategies to reduce the cost burden. Further optimization of subscription programs requires tight coordination across multiple activities. Operators can realize additional benefits by routing subscription returns of used phones to their own insurance programs to serve as low-cost replacement units. Additionally, subscriptions can be used to increase accessories

sales since consumers typically are more inclined to buy protective cases when they are expected to return the phone in good condition.

Significant interdependencies also exist between supply chain, sales, marketing, and procurement teams that can be addressed only through an agile E2E device life-cycle management approach. For example, if the marketing team ensures broad awareness of planned smartphone-related promotions, procurement can get OEMs to bid competitively for promotional slots or negotiate with them to co-fund campaigns. Conversely, if the supply-chain team provides immediate visibility into slow-moving SKUs, the marketing team can design spot promos to improve their sales while procurement can negotiate price protection and additional funding from OEMs.

Telecom operators in mature wireless markets are reaching a critical inflection point with the transition to 5G. The magnitude and complexity of the smartphone subsidy challenge will increase significantly in the next few years. Yet, operators cannot retreat from smartphones that continue to be among the most important drivers of “stickiness” and a powerful tool to fuel subscriber growth. Additionally, the subsidy challenge is expected to extend beyond smartphones to other connected devices that form part of the 5G ecosystem.

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The first step in overcoming this challenge requires operators to establish an E2E device life-cycle management approach via P&L visibility and a new operating model that incorporates the seven critical activities. From there, operators must invest in innovation as well as execution against key levers for driving profitability, such as securitization, re-commerce, and insurance. Each lever on its own can drive significant financial gains for operators, but they can offer an even bigger impact if executed in tandem.

All stakeholders should reap major benefits as a result of this shift. For consumers, access to the latest smartphone becomes more affordable and seamless, and they can use the remainder of their telecom wallet on services and accessories. Operators would carry close to zero costs on their balance sheet for buying, transporting, and servicing devices—ensuring they have capital to invest in improving their network services—while becoming one-stop shops for consumers and their 5G needs. For their part, OEMs also would likely see faster-growing sales of new devices and would stand to gain from a structured, secondary-life ecosystem. Achieving such a win-win-win outcome is far from easy. But for operators faced with a potentially unsustainable smartphone status quo, it may well be the best call to make.