

by

Raul Katz
katz_raul@bah.com

Eric Riddleberger
riddleberger_eric@bah.com

Bharat Sarma
sarma_bharat@bah.com

Daniel Yang
yang_daniel@bah.com

Prepaid Wireless

The Next Frontier in the U.S. Wireless Industry

Prepaid Wireless

The Next Frontier in the U.S. Wireless Industry

Executive Summary

The U.S. wireless services industry is facing a situation of declining incremental penetration. To drive the next wave of customer acquisition, operators will need to employ a variety of strategies. One area where carriers around the world have achieved significant success is the prepaid market.

In the United States, senior executives of network operators are beginning to realize the importance of prepaid. “We see it as a high-growth opportunity,”¹ says Verizon Wireless spokeswoman Brenda Raney. However, prepaid strategies need to be well executed and well managed to create value for the wireless carrier. Given the nature of the customer segments typically targeted by prepaid strategies, as well as the basic financial structure of prepaid, profitability risks can be significant if they are not managed effectively.

These risks have created the impression that the prepaid market is uneconomic and unattractive. However, contrary to popularly held notions, a dissection of the economics of the prepaid customer shows that this segment can have a significant positive impact on the EBITDA margins of operators. A larger prepaid base does not necessarily imply a weaker financial performance, as is apparent in the performance of the more mature European industry. Booz Allen Hamilton has identified five key strategies that, if effectively deployed, will dramatically transform the economics of the prepaid customer:

- Tight control of acquisition costs
- Increase in prepaid ARPUs
- Retention-focused customer contact strategies
- Innovative pricing-plan structures
- Transformation of the prepaid customer into a postpaid subscriber

¹ “In Control: Providers Target Cost-Conscious User Group with ‘Postpaid’ Features,” *Phone+*. *The Journal for Wholesalers, Resellers, and Agents of Communications, Computing, and Content Services*, December 2001.

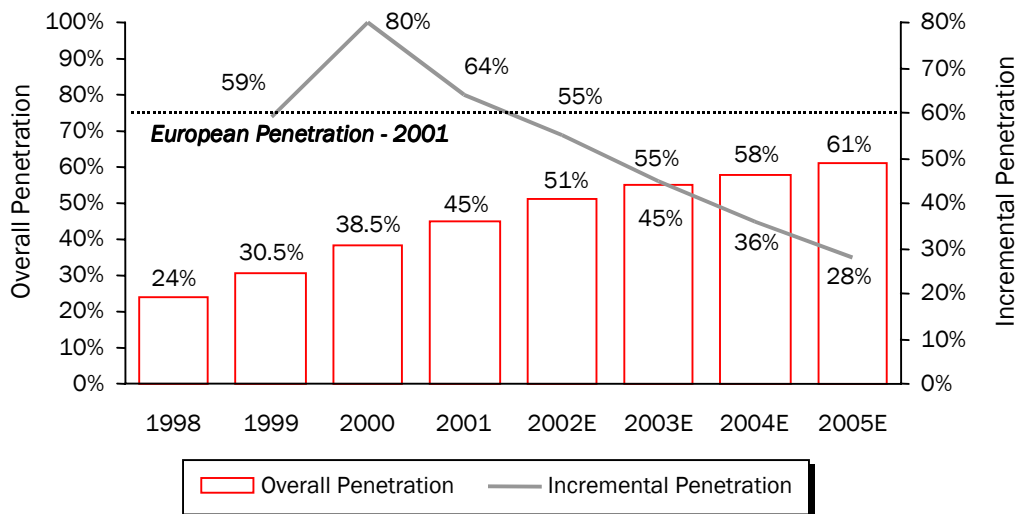
The Case for a Prepaid Strategy

As penetration approaches 50% in the U.S., it is becoming increasingly difficult to acquire additional customers. The past few quarters have witnessed a clear slowing of incremental growth, which will not help bridge the gap between wireless penetration in the U.S. and current European levels of 70%–80% in most countries (see Exhibit 1). In fact, it appears that the U.S. market will peak at around 60%.

To capture the remaining customers, carriers have resorted to price competition, free minutes, and reductions in handset prices. The average monthly bill has dropped about 8%, from \$66 at the end of 2000 to \$61 at the end of last year². This price-driven competition is reflected in the steady decrease in the average price per minute of use (MOU). These trends have become especially consistent and significant during 2001 (see Exhibit 2).

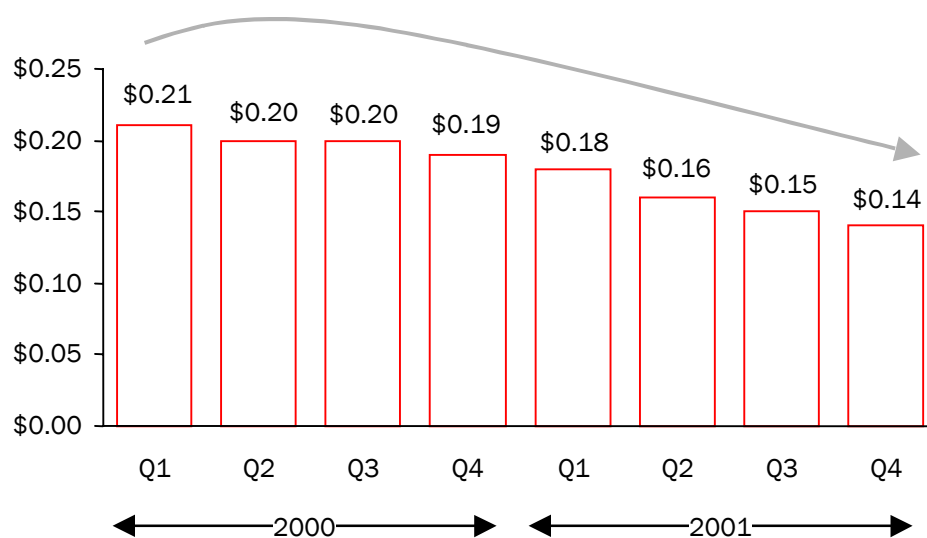
Unfortunately, a price-only competitive strategy leads to several problems. First, the additional subscribers for which carriers compete will, on average, exhibit lower ARPU than the existing subscriber base. Lowering the effective price by giving away more minutes or reducing the bundled rate will make it more difficult for the carrier to recoup the acquisition cost. Second, if a carrier lowers the price for the new subscriber, it must lower the price for all of its existing customers, including the profitable ones, or risk churn of its profitable customer base. This results in an aggregate downward shift in the ARPU of the customer base. Third, a purely price-driven strategy will not enable carriers to reach certain segments of the population that use their phone only occasionally or whose credit profile is so poor that they could never be approved for a contract.

Exhibit 1
Overall and Incremental U.S. Penetration



Source: Merrill Lynch, Booz Allen Hamilton

² J.D. Power, *The Wall Street Journal*, April 2002.

Exhibit 2**Historical Price per MOU Decrease for the U.S. Wireless Industry³**

Source: Merrill Lynch, Booz Allen Hamilton

We believe that the careful implementation of a wireless prepaid strategy is one of the most effective ways for U.S. carriers to minimize the inevitable trade-off between increasing subscriber volume and revenue leakage. Carriers in other regions of the world have made extensive use of a prepaid strategy. For example, in Europe, Singapore, and Hong Kong, carriers have employed prepaid programs to achieve penetration levels of over 65%. In Latin America and other parts of Asia where the levels of disposable income are low, carriers have effectively used a prepaid strategy to attract low-usage customers. In comparison, 91% of North American subscribers purchase service on a contract basis (see Exhibit 3).

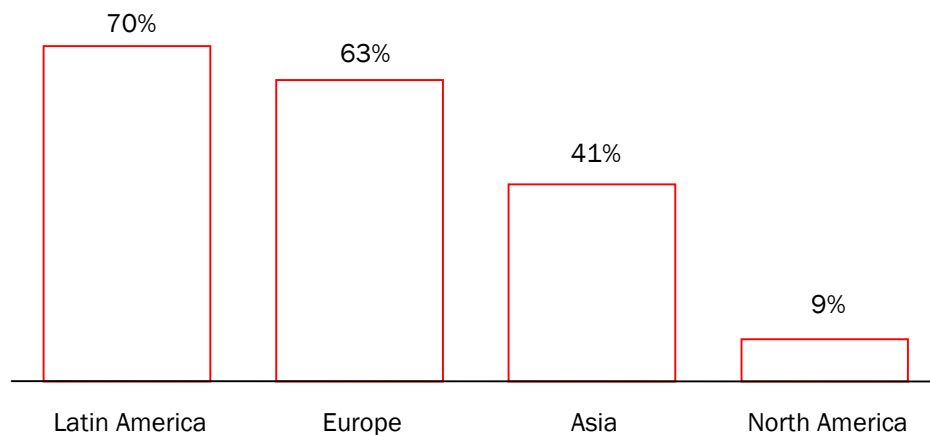
There are various permutations of the prepaid plan, which requires a subscriber to pay for usage in advance. In the U.S. to date, three major types have been employed: traditional, account spending limit, and regional fixed plans.

Verizon, AT&T, and Cingular have all employed the traditional model, which requires no deposit or credit check. The user simply buys a prepaid card at any retail store or third-party outlet, activates the minutes by calling the service center, and then talks until the minutes are used up. Subscribers can refill minutes at the carrier's own stores, at other retail outlets, via an 800 number, or through the online store. The minutes are typically available in cards of \$25, \$50, and \$75 increments, each of which has a different cost per minute.

³ Top six U.S. wireless carriers considered: Verizon Wireless, AT&T Wireless, Cingular Wireless, Sprint PCS, VoiceStream, Nextel Wireless.

Exhibit 3

Wireless Prepaid Penetration (% of total penetrated base)



Source: IDC, Booz Allen Hamilton

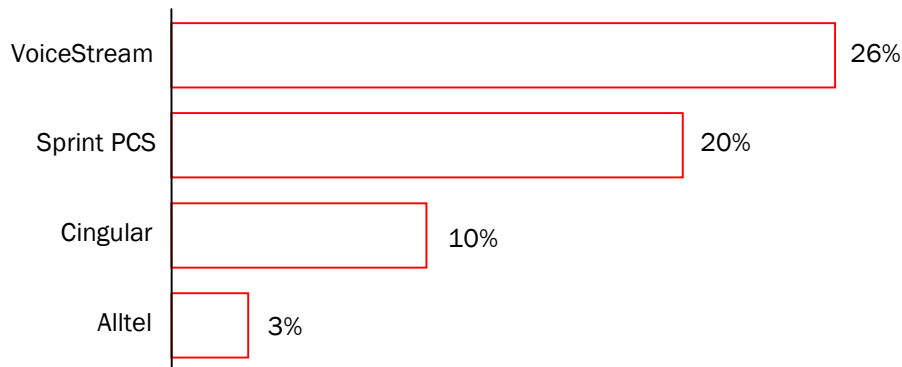
Sprint PCS employs the account spending limit model. This model requires a credit check to determine the spending limit on the account and the amount of the deposit. Subscribers use minutes up to their account spending limit but must settle the balance for minutes beyond that amount; minutes do not carry over from month to month. Subscribers can refill minutes by sending a check or money order through the mail, using a credit card, or appearing personally at a Sprint store or authorized third-party retailer.

Regional/rural carriers, such as Leap Wireless, have been able to implement a more aggressive version of the prepaid plan. Subscribers pay a fixed up-front monthly fee for an unlimited number of minutes within a specified regional area. Additional features such as call waiting and entertainment functions can be added for a flat fee.

Several U.S. national carriers have generated moderate installed bases of prepaid subscribers. Verizon believes that prepaid customers represent 10% of its total revenue (see Exhibit 4).

However, the prepaid customers on whom carriers have focused so far represent only a portion of the potential prepaid segment. Following is a discussion of our perspectives on market segments with significant potential.

Exhibit 4 2001 Estimated Prepaid Penetration for Selected Carriers



Note: Alltel percentage based on 2000 data
Source: Company reports, IDC, Merrill Lynch, Booz Allen Hamilton

Target Customer Segments

Historically, prepaid programs have targeted poor-credit customers to whom carriers would refuse postpaid services. These customers represent one-third of the U.S. population and make up a large percentage of the under-penetrated segments. Their credit history usually prevents them from obtaining a cellular phone. The effective wireless penetration of the low-credit segment is just 15%⁴, and these individuals represent all segments of the population (see Exhibit 5).

Exhibit 5 Low-Credit Segment Demographic

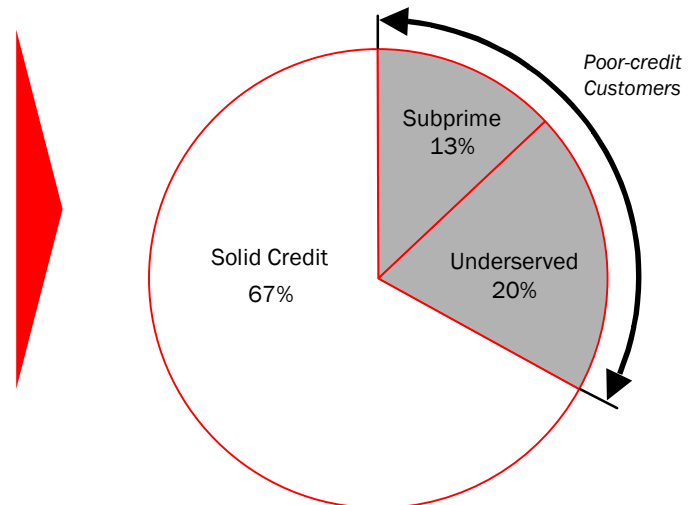
Factors Determining FICO Score

| Factor | Weighting |
|------------------------|------------------|
| Payment History | 35% |
| Amounts Owed | 30% |
| Credit History Length | 15% |
| New Credit | 10% |
| Types of Credit in Use | 10% |

Credit Score Breakpoints

Solid Credit = 680 +
Underserved = 600–680
Subprime = Below 600

U.S. Population Breakdown According to Credit Score (2001)



Source: Fair, Isaac and Company; Booz Allen Hamilton

⁴ 10% of the overall 50% penetration in the U.S. is prepaid, equivalent to an overall 5% penetration. Since prepaid strategies mainly target low-credit customers, who make up 33% of the U.S. population, the effective penetration is 15%.

In addition to the low-credit customer, there exist customer segments for which the prepaid plan structure is inherently attractive. This overall market potential is larger and more diverse. We have identified five additional major target segments. On the consumer side, 1) occasional users, 2) young adult users, and 3) the Hispanic market are ideal prepaid customers. On the business user side, 4) small business owners and 5) transient business travelers represent attractive segments.

Occasional users most likely already have a cellular phone but are extremely unhappy with being locked into a contract. They often have compelling reasons to purchase a wireless phone. For instance, a person concerned about safety would want to carry a cell phone in case of an emergency. With traditional postpaid plans, the lowest bucket of minutes one could buy is around 300 minutes, implying a talk time of an hour and fifteen minutes per week to justify buying the plan. However, an estimated 67% of U.S. subscribers use under 180 minutes per month.⁵ Therefore, for occasional users a prepaid plan is attractive, since they can have greater control and avoid contracts that will require them to pay for far more minutes than they need.

Most *teenagers and young adults* do not have the budget to enter into a postpaid plan with a carrier. They must become additional users on their parents' plans, requiring the carriers to undertake a more complex sales effort directed at both the youth market and the parents. For young adults, a drawback of the postpaid plan is that it subjects them to parents' scrutiny. Prepaid services ensure the children's privacy while still enabling parents to control costs. For carriers, it limits the sales effort to one customer segment. From a perspective of customer lifetime value, targeting individuals between the ages of 16 and 24 could be extremely lucrative for carriers in the long run, since this demographic will switch to a postpaid account later in life. Establishing loyalty early could mean a windfall over a customer's tenure with the carrier. Younger subscribers also tend to be more technologically adept, more prone to experimentation, and more inclined to use value-added services such as SMS. Further, they increasingly influence key communications and technology choices in families, making them important brand spokespersons. Currently this demographic constitutes approximately 14%⁶ of the overall population and is growing 70% faster than other segments, making the revenue potential from this segment very attractive.

The *Hispanic market* makes up approximately 13%⁷ of the U.S. population and has one of the highest growth rates of any demographic segment. In addition, several key demographic characteristics make it a fertile market for a prepaid offering. First, Hispanic households tend to share infrastructure within the family – houses, cars, telephones, etc. Therefore, family members often use prepaid phone cards instead of dialing direct in order to avoid keeping track of phone charges for each user. Second, in comparison with other cultures, there is a preference for cash-based financial transactions, making the prepaid solution ideal.⁸ Finally, many Hispanics, especially immigrants, are part of the low-credit customer segment, which precludes the possibility of contract wireless offerings.

⁵ IDC PCS Wireless Communications User Survey 2001, Booz Allen Hamilton analysis.

⁶ U.S. Census website, Booz Allen Hamilton analysis.

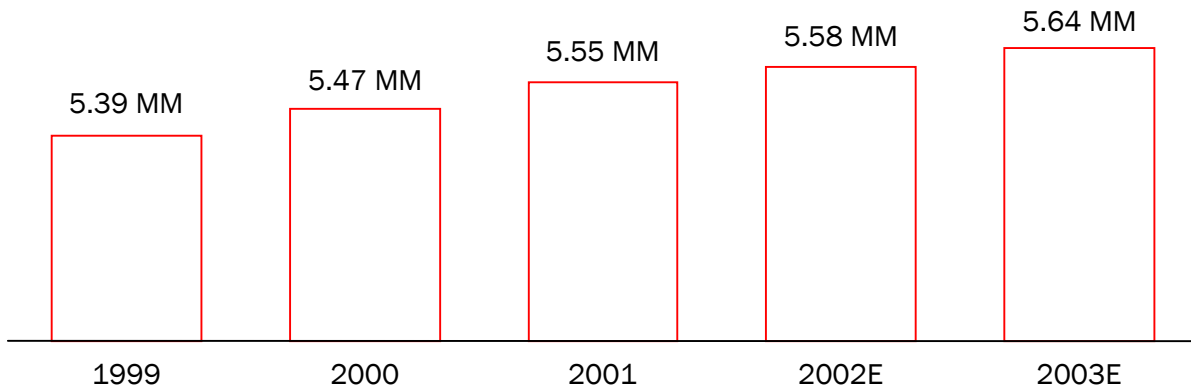
⁷ 2000 U.S. Census.

⁸ "Viva La Diferencia! Diversity of U.S. Hispanic Population Calls for Nuance Marketing," *Phone+*. *The Journal for Wholesalers, Resellers, and Agents of Communications, Computing, and Content Services*, December 2001.

Market research shows that *small businesses* tend to be early adopters of wireless technology but are more cost-conscious than their larger counterparts. Prepaid programs offer a unique and compelling value proposition by providing a simple method to control spending dollars of employees who use phones for business purposes. Those businesses with highly seasonal usage patterns will also appreciate a prepaid program's ability to control usage. Further, a small business will not have to deal with billing hassles and disputes — the number one source of customer dissatisfaction. More than 96% of all U.S. companies are small businesses, so this is a significant market (see Exhibit 6).

Transient travelers within the U.S. who need a local cell phone represent an under-penetrated segment. For example, a business traveler based in Atlanta who has a local plan and does not want to pay exorbitant roaming fees could purchase a prepaid calling plan and rent a handset upon his arrival in New York. This would allow him to limit his spending while benefiting from the flexibility. Obviously, the attractiveness of this service will decline as a function of erosion of roaming charges in national pricing plans. This model is even more compelling for an international traveler visiting the U.S., given high roaming fees and incompatible frequency bands. Since this service does not currently exist, it is difficult to ascertain the exact demand. However, the airline industry documents approximately 100 MM people traveling in and out of the U.S. each year, and 700 MM air travelers within North America annually⁹. Capturing just a small portion of this latent demand would represent substantial revenue potential for U.S. carriers.

Exhibit 6
Small Businesses (<100 employees) in the U.S.



Source: U.S. Census Bureau, Booz Allen Hamilton

⁹ IATA World Air Transport Survey 2000.

Financial Risks of Prepaid Strategies

Experience with prepaid strategies in the U.S. has illustrated the difficulty of implementing an effective prepaid program. “Prepays are tricky,” says Ronald Dykes, CFO for BellSouth. “We look at customers on a valuation basis and it’s hard to make a case for prepaid customers on that basis.”¹⁰ Booz Allen Hamilton has identified four implementation risks: 1) high churn, 2) postpaid cannibalization, 3) cash flow mismatch, and 4) customer anonymity.

High churn is a key characteristic of the prepaid customer. Most current prepaid customers view the purchase of a prepaid program as a temporary solution to their mobile communications needs, and hence tend to be quicker to switch carriers. In fact, churn for prepaid customers is approximately twice that of postpaid customers.

Cannibalization of the postpaid customer is another major risk carriers face. Since the minimum number of minutes under a postpaid plan is typically 300, those existing customers who use under 300 minutes and switch to a prepaid program would generate lower profits. The exact breakeven point for the carrier occurs where the yields (\$/min) from the two plans are equal. The pool of customers who use less than 180 minutes is large—they constitute 67% of all U.S. subscribers — and hence the risk is significant.

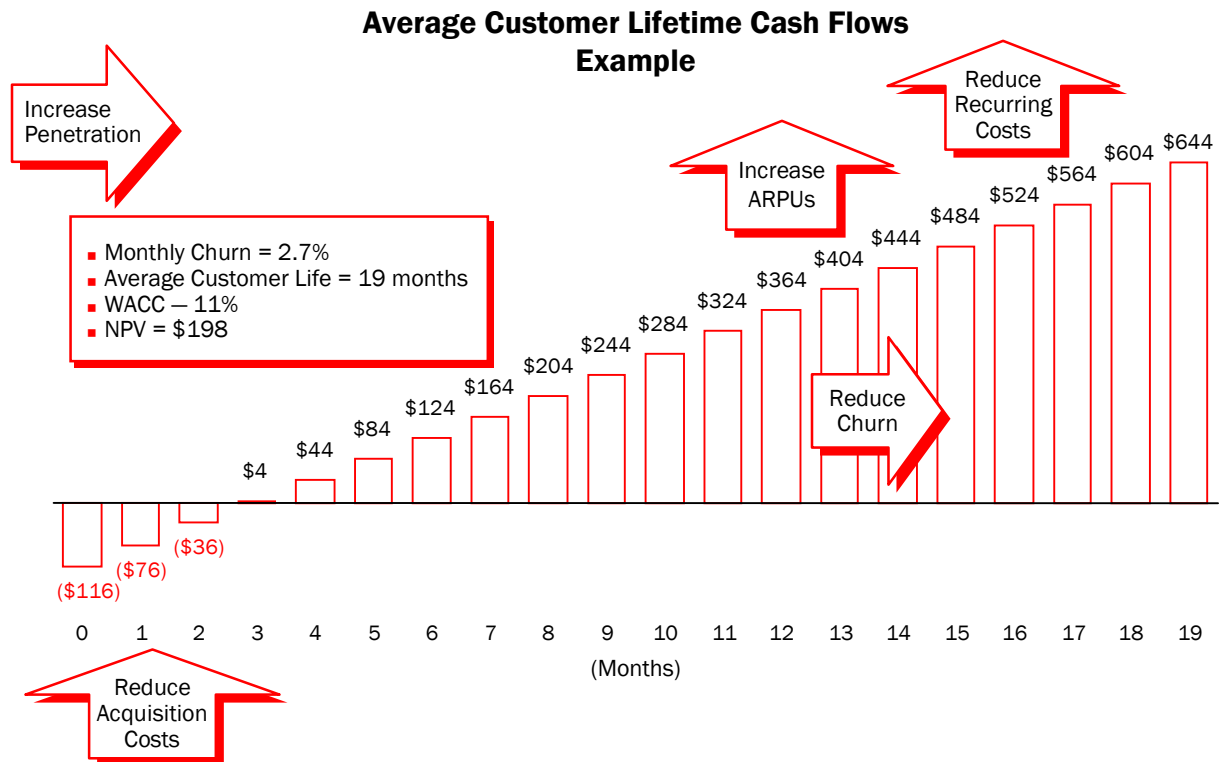
To make it convenient for users to refill minutes, carriers need a complex array of distribution channels. They must also make up-front and regular financial investments in systems and other infrastructure to enable smooth activation and service. However, prepaid users do not buy minutes on a regular basis, leading to an unpredictable revenue stream and a potential *cash flow mismatch*.

Finally, *customer anonymity* is high because of the absence of billing statements as well as minimal contact at activation and reduced calls to the service center. Because the main method of gathering customer data is through call information from customer care, carriers are limited in their ability to tailor promotions to customer needs and deliver them. To make things worse, it is difficult to advertise promotions or upsell products when customers call customer care.

Key Strategies for an Effective Prepaid Offering

Generating value from a prepaid offering — and sustaining this value creation — requires continuous and innovative management. We have identified five key strategies for wireless operators to maximize value. Each of these strategies is an interwoven combination of the five levers of customer value optimization that are available to an operator (see Exhibit 7).

¹⁰ “Sprint PCS a Bright Spot in 3Q Subscriber Adds,” *RCR Wireless News*, October 22, 2001.

Exhibit 7**Customer Lifetime Cash Flows—Five Levers of Value Optimization**

Notes: Assumed operating ARPU of \$53, cost to serve of \$13, and acquisition cost of \$156

Source: Booz Allen Hamilton

1. Tight control of acquisition costs

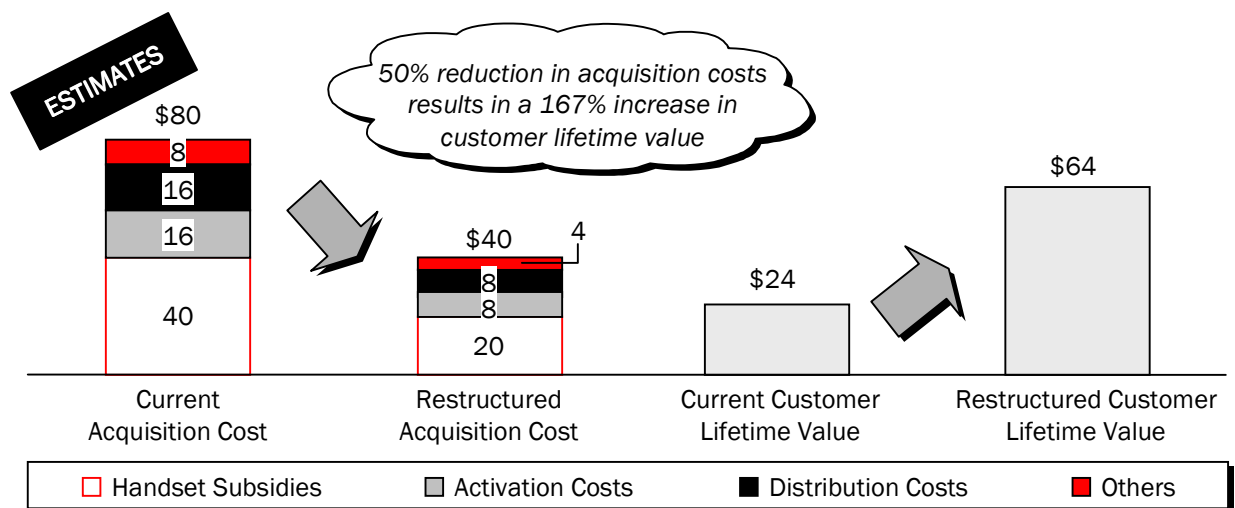
Because the customer lifetime value is lower for prepaid customers than for postpaid, prepaid plans have typically been structured so that the acquisition costs are also lower. In addition, companies have explicitly tried to reduce prepaid acquisition costs; however, more aggressive steps are necessary to effect this change. The main areas of acquisition cost reduction are:

- **Reduced handset subsidies:** Free or subsidized handsets are a significant portion of acquisition costs — nearly 30%. They need to be viewed as an unnecessary subsidy to the prepaid customer, since in the case of a postpaid subscriber, the lower-priced handsets are used to build loyalty and encourage usage. However, due to the prepaid customer's transient nature and low usage, spending handset subsidy dollars on the prepaid customer is suboptimal. Leading operators in Europe have announced their intention to reduce the handset subsidy. For example, in an effort to shift the investment to the customer and reduce ongoing churn, One 2 One and Vodafone recently announced a doubling in retail prices of their prepaid phones. However, this approach can limit the target market. We recommend mitigating its impact by developing a secondary market for lower-cost, unsubsidized refurbished phones. These phones can be refurbished and distributed through the reverse handset logistics supply chain, and hence better leverage the existing triage, repair, and distribution infrastructure.

- Lower-cost activation and IVR usage: Customer activation costs are especially important since churn is high in the prepaid segment. Increased leverage of Interactive Voice Response (IVR) systems will help cut activation costs. Current IVR unit activation of 10%–15% across all customers needs to be increased to 60%–70% for the prepaid customer. These systems can replace human interfaces at roughly 20% of the cost over a three-year period. Other methods to reduce registration costs are:
 - Simplification of activation procedures through process improvement diagnostics
 - Low-cost payment mechanisms, e.g., Internet-based payment models, use of “net money” such as PayPal.
- Efficient low-cost distribution: Greater use of alternative indirect distribution channels to provide customers with access to prepaid cards and phones is necessary. Supermarket chains, convenience stores, vending machines and grocery stores are examples of these channels. In fact, they have been used for years by the long-distance industry. In Europe, for example, ATM and other vending machines are being reengineered to provide the functionality to purchase prepaid cards and also refill minutes via a direct transfer from a bank account. Operators also need to increase the proportion of sales through franchise resellers while maintaining a tight control on margins. Due to decreased leverage, acquisition costs from these resellers are one-half to one-third less than the main indirect and direct channels. The incentive communicated to resellers needs to be customer growth and the opportunity to convert these customers into postpaid subscribers in the future.

Financial modeling of the prepaid customer’s lifetime value demonstrates a significant benefit from acquisition cost reduction (see Exhibit 8).

Exhibit 8
 Acquisition Cost Reduction Impact on Prepaid Customer Lifetime Value



Note: Based on estimates of prepaid customer financials. Assumed churn of 6%, ARPU of \$25, cost to serve of \$8, WACC of 11%
 Source: Booz Allen Hamilton

Decreasing the overall acquisition cost by 50% allows the carrier to recoup costs within one month instead of the current three months. This reduces the “time to profitability” per subscriber for the carrier, and significantly increases the customer lifetime value by 167%. Further, the higher customer investment increases stickiness, resulting in reduced churn.

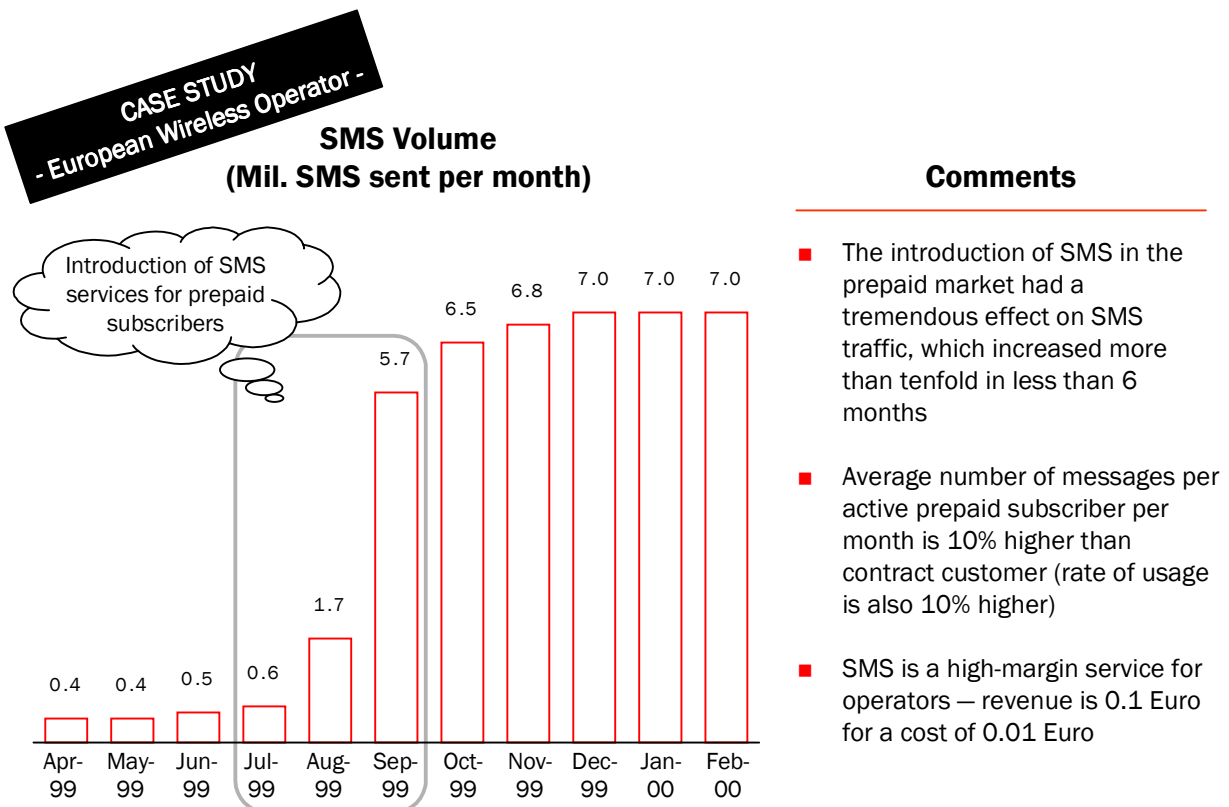
2. Increase in prepaid ARPUs

Prepaid plans have predominantly been basic voice offerings. Recently, U.S. carriers have experimented with providing some additional value-added services such as call forwarding, line blocking and text messaging. However the U.S. market has not witnessed the delivery of a bundled value-added service offering. The potential benefits of a structured strategy focused around value-added services for prepaid subscribers are significant. Contrary to popular opinion, which holds that the prepaid customer is not willing to pay for value-added services, the introduction of such services in Europe has witnessed a significant uptake (see Exhibit 9).

The impact of these services has been the growth in data ARPU as a proportion of the total ARPU generated from the prepaid subscriber, which resulted in a reversal of the prepaid ARPU erosion (see Exhibit 10).

Exhibit 9

Uptake of SMS Services Among Prepaid Subscribers in Europe

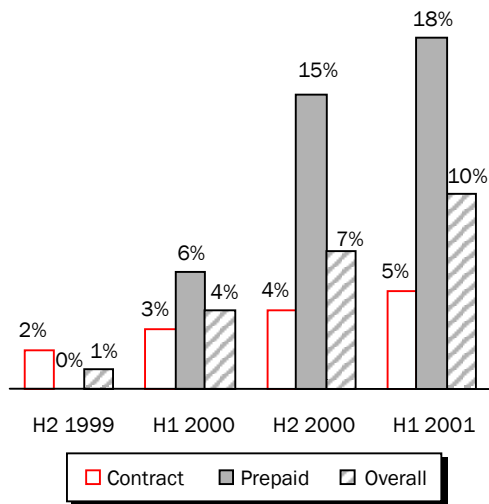


Source: IRR conference on SMS market - Dec. 2001, Booz Allen Hamilton

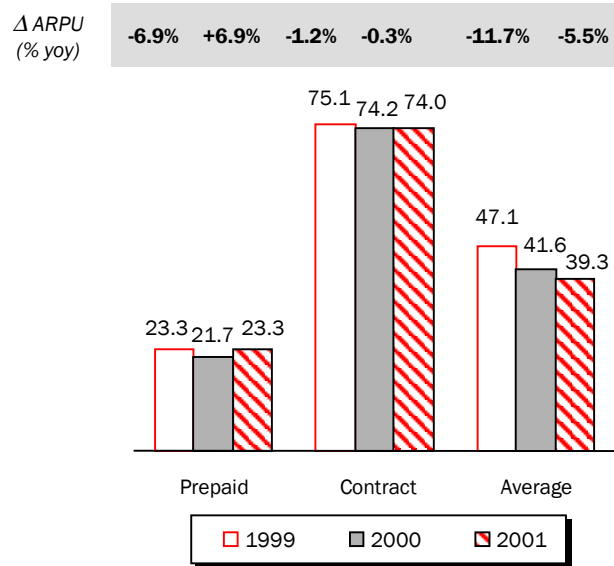
Exhibit 10
Uptake of SMS Among Prepaid Subscribers in Europe

CASE STUDY
- UK Wireless Operator -

Mobile Data Revenues
(% of Total Revenue)



Monthly ARPU (£)

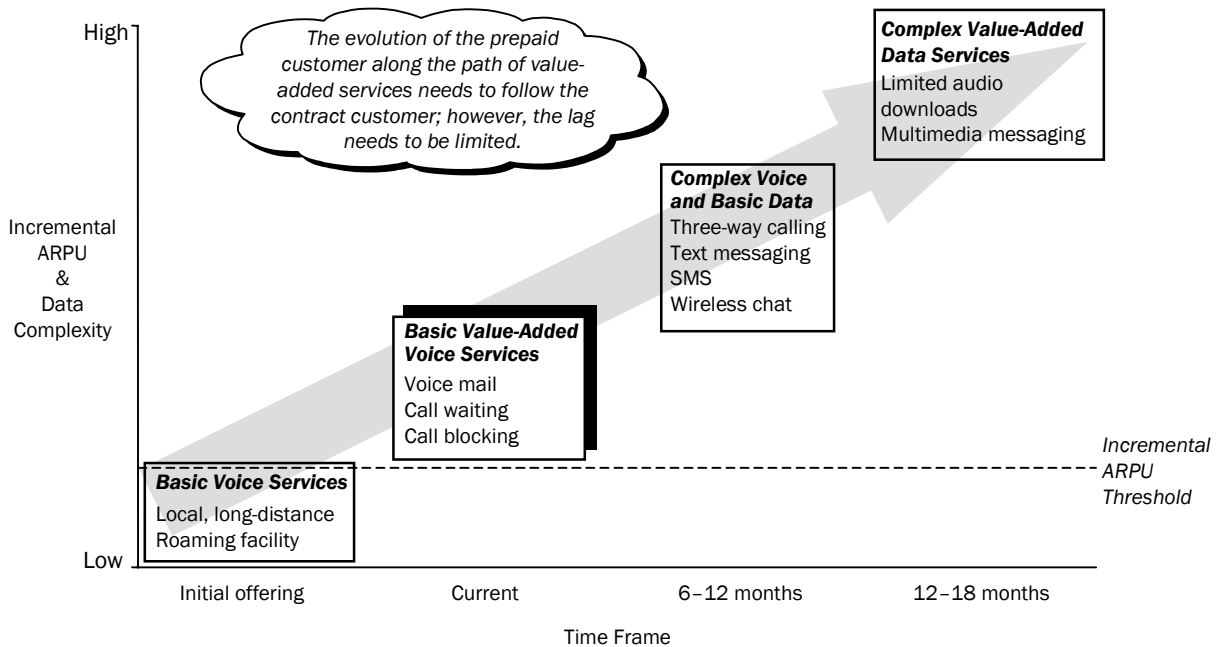


Note: Average customer base is the average of customer base at the beginning of the year and end of the year
Source: IDATE, Booz Allen Hamilton

The introduction of value-added services has to be gradual, since the carrier will need to educate and change the usage behavior of the prepaid customer. Two key barriers must be overcome:

- **Lack of familiarity with services:** On average, the prepaid customer is not a sophisticated buyer of wireless services. The complexity of these value-added services is often a deterrent to the most sophisticated and frequent user, and is thus even more likely to be an obstacle in the prepaid segment. Also, as the needs of the customer evolve from basic voice services to more complex, value-added features, carriers need to address customer expectations.
- **Unwillingness to pay:** Prepaid customers are used to being offered free services, thanks in great part to the Internet boom (e.g., e-mail, messaging). Convincing them to pay for services might be a more gradual process than for the average population. This transition will become easier over time as the installed base increases and influences communication behavior (e.g., SMS is driven by friends and associates who desire to communicate) (see Exhibit 11).

Carriers need to introduce these services gradually to avoid building too much cost into the system without a matching revenue-generation opportunity. The sensitive economics of the prepaid customer do not allow for such luxuries in product development timing.

Exhibit 11**Value-Added Service Bundle Evolution of the Prepaid Customer**

Source: Booz Allen Hamilton

3. Retention-focused customer contact strategies

A key reason for high prepaid churn is customer anonymity. With the traditional prepaid model, the carrier limits the number of “customer touch points,” primarily to minimize customer handling costs. However, this approach also leads to a lack of loyalty, a limited awareness of carrier services offered, and a tendency to revisit the carrier choice each time the subscriber renews his or her minutes. This impact can be minimized through a set of low-cost, high-touch customer contact strategies focused on customer retention (see Exhibit 12, page 15).

These initiatives, coupled with the higher investment expected from the customer (due to the need to control acquisition cost), will help reduce prepaid churn from today’s high levels of 5%–6% per month.

4. Innovative pricing-plan structures

Traditional prepaid pricing plans were restrictive and tightly structured. Consequently, users with a need for more minutes were constrained and had no incentive to increase usage. Innovative pricing structures could unlock value (see Exhibit 13, page 15).

The strategies described in Exhibit 13 would not work in isolation; most effective would be a combination of these strategies introduced as part of an overall new pricing structure launch. Also, it is important that the carrier monitors customer response to these strategies in order to address gaps, modify the pricing structure, and encourage the desired customer behavior.

Exhibit 12 Customer Retention Strategies

| Action Description | Impact on Life Cycle | | |
|--|----------------------|------------|-----------------------|
| | Tariff Repositioning | Re-signing | Customer Satisfaction |
| ▪ Mailing promo release/ new offers | ● | ◐ | ● |
| ▪ Welcome call | ○ | ◐ | ● |
| ▪ Mailing cap first year | ● | ● | ● |
| ▪ Phoning cap first year | ● | ● | ● |
| ▪ Roamer action | ○ | ○ | ◐ |
| ▪ Promotion of services via SMS | ○ | ○ | ◐ |
| ▪ Promotion of services while calling the service center | ○ | ◐ | ○ |
| ▪ Mailing with vouchers of options | ○ | ◐ | ◐ |
| ▪ Operator's club advantages | ○ | ◐ | ● |
| ▪ Operator's club mailing | ○ | ◐ | ◐ |
| ▪ Handset renewal offer (mailing) | ● | ● | ● |
| ▪ Handset renewal offer (network) | ● | ● | ● |
| ▪ Newsletter | ○ | ◐ | ◐ |

● High
◐ Average
○ Low

Source: Booz Allen Hamilton

Exhibit 13 Pricing Plans to Drive Specific Customer Behavior

Usage-Driving Strategies

Overall Objective: Drive higher usage within the plan and frequent top-ups

- Incentivizing frequent or regular top-ups through:
 - Airtime bonuses (free minutes)
 - Special lower rates for a portion of the minutes
 - Additional minutes for the month at a lower per-minute rate
- Incentivizing higher usage through reduced incremental minute tariffs based on:
 - Higher recharge amounts (several operators)
 - Number of minutes used consistently over a specified period (e.g., 6 months)

Multiple Card Strategies

Overall Objective: Drive subscribers to possess multiple prepaid cards

- Differentiated cards for different times of the day: different rates and minute bundles depending on the time of the day, e.g., nighttime calls could be in bundles of 10 minutes at a lower rate, as opposed to day calls, which are charged per minute, but at a higher rate
- Different cards based on value-added feature bundles, e.g., a voice minutes and messaging card that gives a better rate on the overall bundle, or another card that gives better rates on basic voice minutes and value-added voice service features

Source: Booz Allen Hamilton

5. Transformation of the prepaid customer into a postpaid subscriber

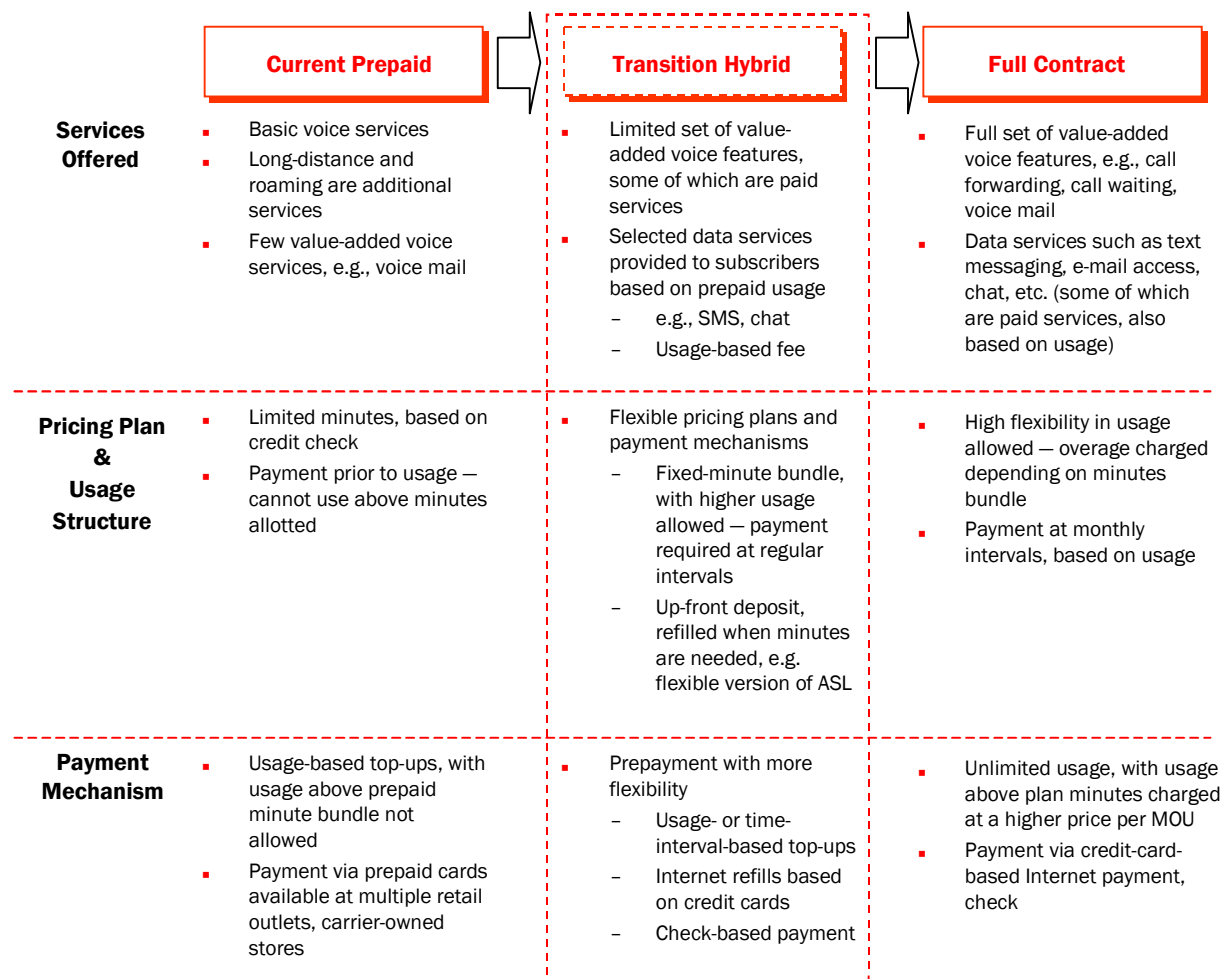
Prepaid customers have been viewed by carriers as a short-term, transient opportunity and have therefore received limited management attention. We believe that the prepaid base needs to be viewed as an *asset base of potential high-ARPU postpaid subscribers*. The structural elements separating a prepaid and postpaid customer are narrowing, though customer behavior still differs. A concerted strategy can influence this behavior.

Transforming a prepaid customer into a postpaid one requires careful planning around the types of services offered, plan structure, and payment mechanism (see Exhibit 14).

The concept behind this transition is that the prepaid strategy needs to evolve into an alternative payment mechanism, as opposed to today's completely different service offering and pricing structure. This transition needs to be viewed as the first stage of the prepaid customer life cycle management process. Once the prepaid customer has been converted to a postpaid subscriber, the carrier needs to continue to work along the five levers to maximize the subscriber value.

Exhibit 14

Transformation of the Prepaid Customer into a Contract Subscriber



Source: Booz Allen Hamilton

In summary, a carrier can dramatically transform the economics of the prepaid customer by following a concerted program that employs a combination of the five strategies discussed earlier. To illustrate the efficacy of this approach with a successful example, Booz Allen Hamilton assessed the prepaid customer value performance for a leading European operator that employed a suitable combination of the strategies discussed (see Exhibit 15).

Attractiveness of the Prepaid Financial Structure

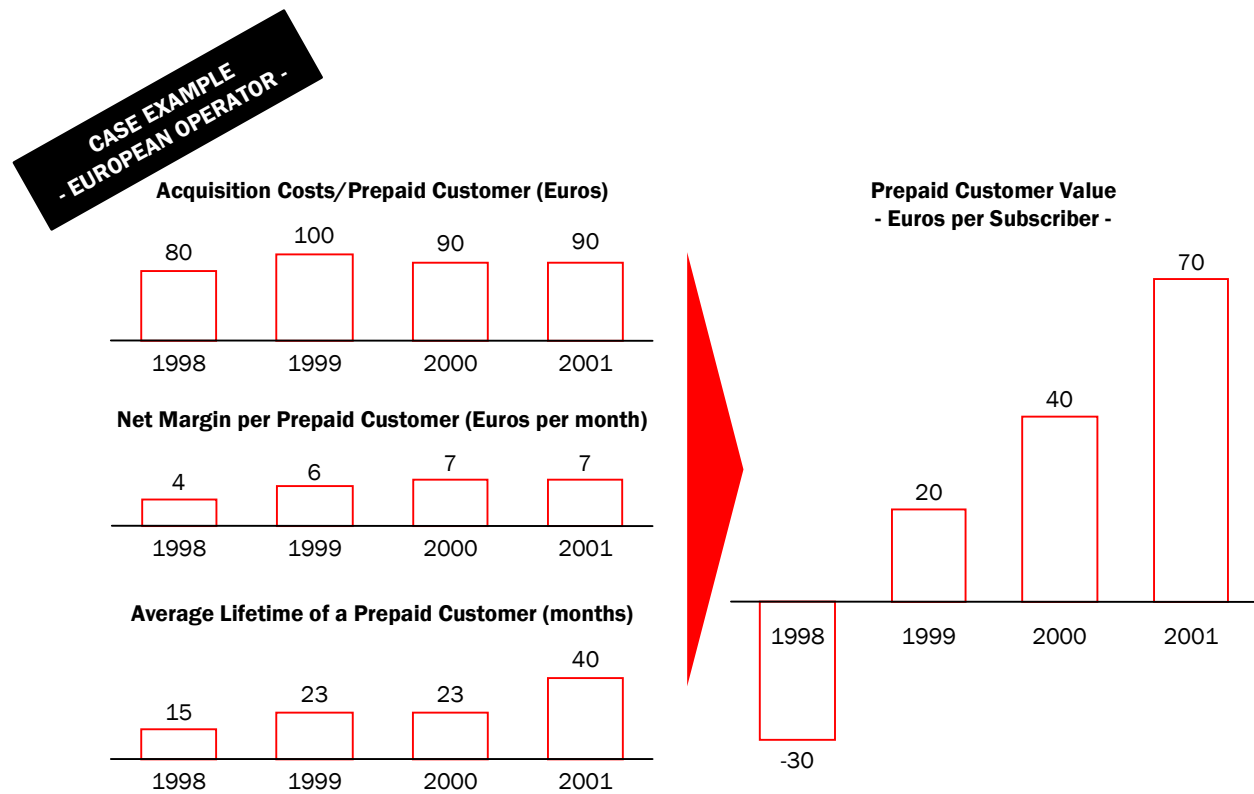
Revenue benefits

Prepaid customers have natural financial benefits, in terms of both the revenue and the cost structures. On the revenue side, the yield for a prepaid wireless customer is generally 30% higher than that of a postpaid customer (see Exhibit 16).

Prepaid is therefore the attractive high-yield stock within a carrier's segment portfolio. Carriers can reward prepaid customers' loyalty by lowering the yield, but should correspondingly drive MOU.

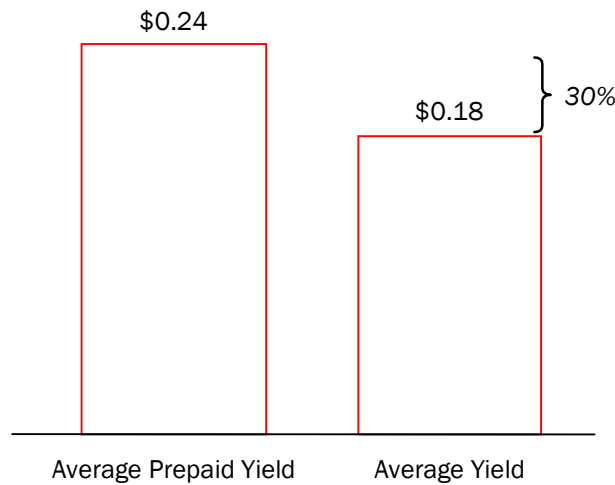
Exhibit 15

Transformation of the Economics of the Prepaid Customer



Source: Company reports, Booz Allen Hamilton analysis

Exhibit 16
2001 Yield Comparison for Verizon Wireless

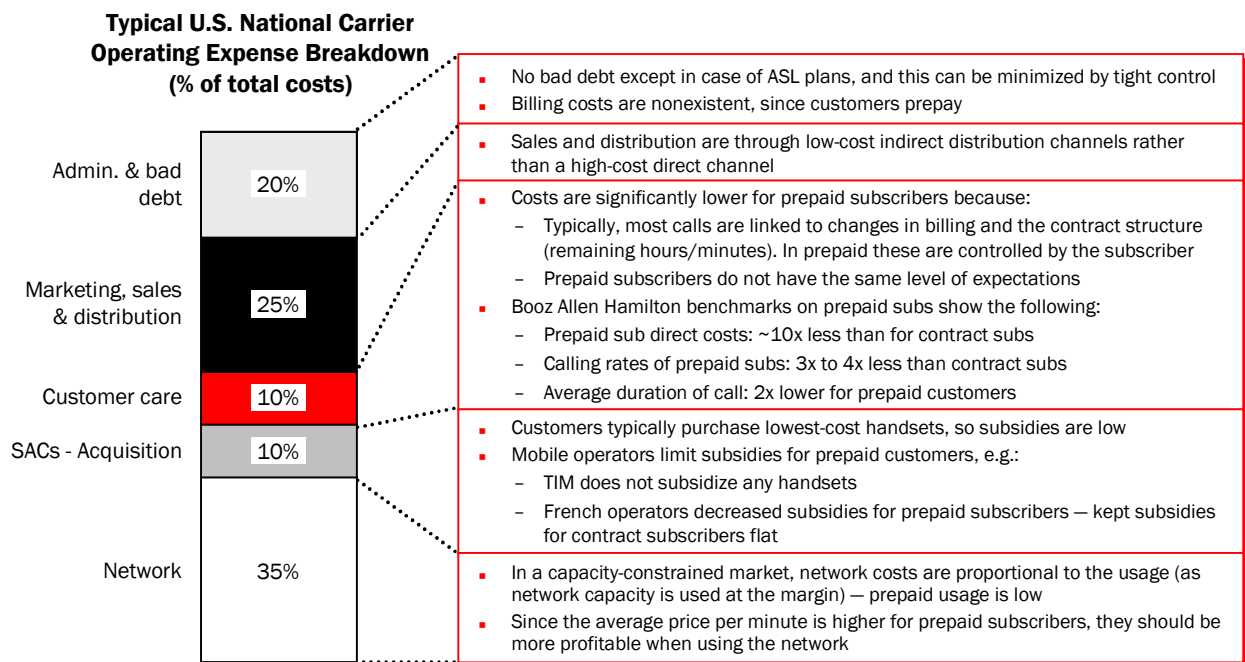


Note: Prepaid average based on linear average of plans—actual yield is most likely higher
Source: Verizon calling card plan, Merrill Lynch, Booz Allen Hamilton

Cost benefits

The prepaid segment has traditionally been considered a high-cost segment due to high churn, distribution costs, and high credit risk. However, a cost-margin analysis of the prepaid customer indicates that this customer has many structural cost advantages (see Exhibit 17).

Exhibit 17
Analysis of the Prepaid Cost Structure



Source: Booz Allen Hamilton

Booz Allen Hamilton conducted an EBITDA analysis comparing a leading European operator with a low prepaid base (Operator X) and another operator with an 80% prepaid customer base (Operator Y). We identified the variance in the margins of both operators and assessed the impact of a higher prepaid customer base on Operator X (see Exhibit 18).

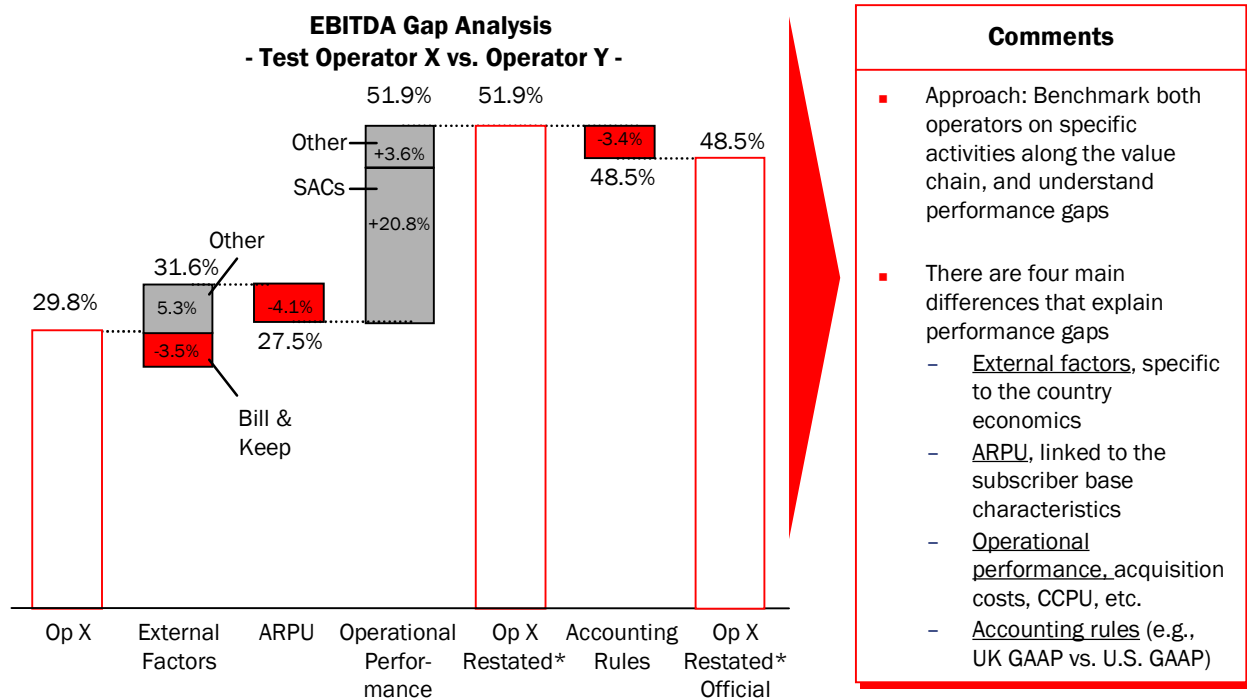
The analysis shows that a starting EBITDA margin differential of 29.8% between Operators X and Y widens to 48.5% after the EBITDA is adjusted in Operator X for the benefits from a larger prepaid base. After an initial adjustment for the country-specific economics, prepaid ARPU accounts for a 4.1% decrease, but operational margin advantages of a prepaid base add 24.4%. The EBITDA differential, after tax adjustments to ensure parity, is a significant 16.9% between Operator X (restated) and the original Operator X. Carriers need to rethink their approach to the prepaid market in light of this assessment.

Misconceptions about prepaid margin

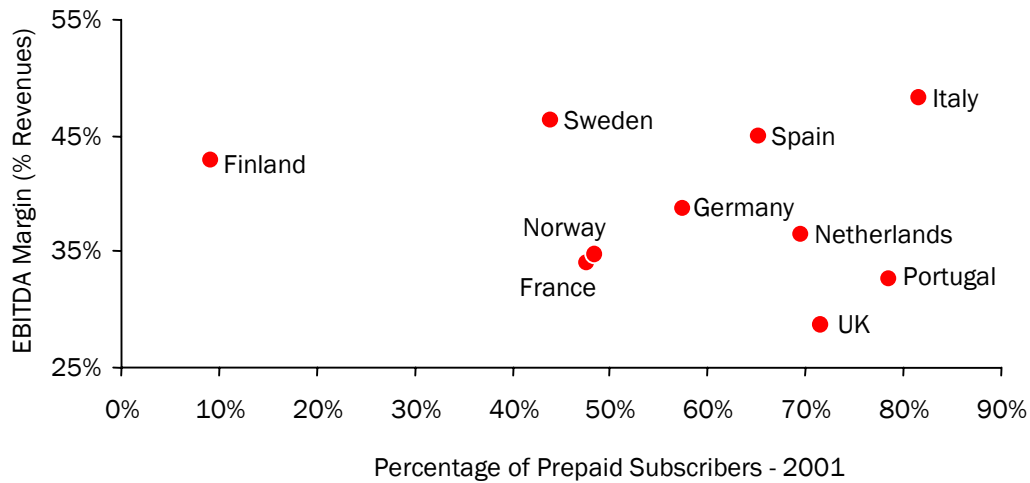
The popular perception is that the prepaid operator suffers from a lower EBITDA margin and has to trade off net additions for “low-quality” additions when penetrating the prepaid segment. A study of European countries and the operators in each reveals a different picture, with the prepaid proportion in a country having no correlation to the EBITDA margins of the operators in that country (see Exhibit 19).

In fact, across all operators, a higher proportion of prepaid in an operator’s customer base does not imply a weaker financial performance.

Exhibit 18
Comparative Restatement of EBITDA for Operator X



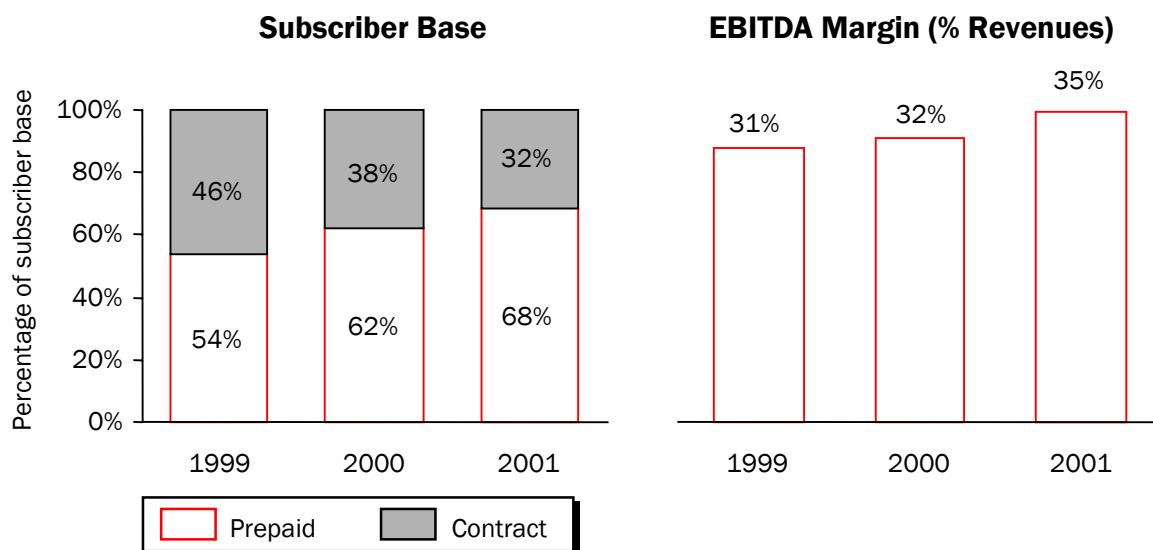
Note: *Margins of Operator X restated for the financial impact of operator Y's higher prepaid customer base
Source: Company reports, Booz Allen Hamilton

Exhibit 19**Correlation Between EBITDA¹ and % of Prepaid Subscribers (2001)**

Note: EBITDA margin in a given country is the weighted average of operator's EBITDA margin in each country
 Source: CSFB, company reports, Booz Allen Hamilton

Prepaid margin success cases

Some operators in Europe have managed to drive net additions via the prepaid segment while still enhancing their EBITDA. This has been possible through an active program of prepaid customer management the moment the customer activates. While these results are not uniform across all carriers that have attempted such strategies (due to various execution issues), many have succeeded in optimizing the value of the prepaid customer. For example, Vodafone UK managed to increase its EBITDA margin while growing its prepaid base from 54% in 1999 to 68% in 2001 (see Exhibit 20).

Exhibit 20**Vodafone UK Performance—Subscribers and Margins**

Note: Average customer base is the average of customer base at the beginning of the year and end of the year
 Source: Vodafone financial statements (2000), adjusted to calendar year, Booz Allen Hamilton

The point is not that this performance expectation can be generalized, or that it can be achieved just by increasing the prepaid base. However, if a carrier pursues a focused strategy based on the multiple levers of value maximization, tight cost management and a consistent approach to convert the prepaid customer into a contract subscriber, the economics of the prepaid customer can be extremely attractive.

Conclusions

In summary, the typical prepaid strategy needs to evolve. Instead of viewing prepaid as a low-value-added service to be offered to subprime customers only, carriers should make the prepaid market a key strategic focus to drive market share. Carriers can achieve this strategic shift while sacrificing nothing in terms of financial performance. In pursuing a prepaid strategy, they should consider the following key points:

- Just as was the case in Europe, launching a strong prepaid strategy in the U.S. is a key initiative to overcome the subscriber penetration barrier of 50–60%.
- Prepaid strategies are one of the most effective ways for U.S. carriers to minimize the inevitable tradeoff between increasing subscriber volume and revenue leakage.
- In addition to a large market base of low-credit customers (who form one-third of the U.S. population), prepaid strategies need to target five key customer segments:
 - On the consumer side, occasional users, youth users and the Hispanic market
 - On the business side, small business owners and transient business travelers
- Prepaid subscribers are *commonly believed to be poor contributors to financial performance* while also generating a low lifetime subscriber value. However, *targeted actions from mobile operators across the five levers of customer value creation can turn them into profitable customers* (illustrated in Europe over the past two years). These levers are:
 - Tight control of acquisition costs
 - Increase in prepaid ARPUs
 - Retention-focused customer contact strategies
 - Innovative pricing-plan structures
 - Transformation of the prepaid customer into a postpaid subscriber
- Structurally, although prepaid ARPU is on average lower than ARPU for postpaid subscribers, yield is higher, costs are significantly lower, and margins (EBITDA) are higher.
- The combination of this structural advantage with the tactical strategies has enabled operators to increase their EBITDA margin with a fast-growing share of the prepaid market, illustrating the attractiveness of the prepaid subscriber base.

Raul L. Katz is a Vice President with Booz Allen Hamilton New York. He has 18 years of experience specializing in business strategy, consumer and industrial marketing, and the management of international telecommunications companies. He can be reached at (212) 551-6536 or by email at katz_raul@bah.com.

Eric J. Riddleberger is a Vice President with Booz Allen Hamilton McLean, Va. He has 19 years experience in telecommunications strategy and technology. His focus includes market analysis, strategic planning, and business development. He can be reached at (703) 902-3841 or by email at riddleberger_eric@bah.com.

Bharat V. Sarma is a Senior Associate with Booz Allen Hamilton New York. He specializes in developing and implementing strategies for wireless telecommunications carriers, equipment manufacturers, and technology companies. His focus includes market assessment, business strategy, financial re-engineering, and sales reorganization. He can be reached at (212) 551-6422 or by email at sarma_bharat@bah.com.

Daniel H. Yang is an Associate with Booz Allen Hamilton New York. He specializes in developing and implementing strategies for wireless and wireline telecommunications carriers. He has worked on engagements in market assessment, financial restructuring, sales force optimization, and wireless media strategy. He can be reached at (212) 551-6607 or by email at yang_daniel@bah.com.

The authors would like to acknowledge the insights by Patrick Zerbib and Laurent Viviez into the success of prepaid strategies implemented in Europe.

Worldwide Offices

| | | | | | |
|---|--|---|--|--|---|
| Abu Dhabi Charles El-Hage 971-2-6-270882 | Buenos Aires Alejandro Stengel 54-1-14-131-0400 | Göteborg Bengt Johannesson 46-31-725-93-00 | Malmö Ingemar Bengtson 46-40-690-31-00 | Paris Panos Cavoulacos 33-1-44-34-3131 | Stockholm Kenny Palmberg 46-8-506-190-00 |
| Amsterdam Peter Mensing 31-20-504-1900 | Caracas José Gregorio Baquero 58-212-285-3522 | Helsinki Kari Iloranta 358-9-61-54-600 | McLean Dennis Doughty 703-902-3800 | Philadelphia Molly Finn 267-330-7900 | Sydney Tim Jackson 61-2-9321-1900 |
| Atlanta Joe Garner 404-659-3600 | Chicago Gary Ahlquist 312-346-1900 | Hong Kong Reg Boudinot 852-2634-1878 | Melbourne Tim Jackson 61-3-9221-1900 | Rio de Janeiro Paolo Pigorini 55-21-2237-8400 | Tampa Joe Garner 813-281-4900 |
| Bangkok Marty Bollinger 66-2-653-2255 | Cleveland Les Moeller 216-696-1900 | Houston Joe Quoyeser 713-650-4100 | Mexico City Alonso Martinez 52-55-5230-6900 | Rome Fernando Napolitano 39-06-69-20-73-1 | Tokyo Yuji Nishiura 81-3-3436-8600 |
| Beirut Charles El-Hage 961-1-336433 | Colorado Springs Glen Bruels 719-597-8005 | Jakarta Ian Buchanan 6221-577-0077 | Miami Alonso Martinez 305-670-8050 | San Diego Foster Rich 619-725-6500 | Vienna Helmut Meier 43-1-518-22-900 |
| Berlin Rene Perillieux 49-30-88705-0 | Copenhagen Kenny Palmberg 45-3393-36-73 | Lexington Park Neil Gillespie 301-862-3110 | Milan Enrico Strada 390-2-72-50-91 | San Francisco Bruce Pasternack 415-391-1900 | Warsaw Reg Boudinot 48-22-630-6301 |
| Bogotá Jaime Maldonado 57-1-628-5050 | Dallas Tim Blansett 214-746-6500 | London Peter Bertone 44-20-7393-3333 | Munich Richard Hauser 49-89-54525-0 | Santiago Alejandro Stengel 562-290-0500 | Wellington Tim Jackson 64-4-915-7777 |
| Boston John Harris 617-428-4400 | Düsseldorf Thomas Kuenstner 49-211-38900 | Los Angeles Tom Hansson 310-348-1900 | New York Reggie Van Lee 212-697-1900 | São Paulo Leticia Costa 55-11-5501-6200 | Zurich Claudia Staub 41-1-20-64-05-0 |
| Brisbane Tim Jackson 61-7-3230-6400 | Frankfurt Andreas Feige 49-69-97167-0 | Madrid Emilio Montes 34-91-5220606 | Oslo Haakon Bjertnaes 47-23-11-39-00 | Seoul Jong Chang 82-2-2170-7500 | |