Perspective

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Evolution or Revolution?
Strategies for Telecom Billing Transformation

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EXECUTIVE SUMMARY

As the telecom industry looks to improve the customer experience in all aspects of its business, the billing process is finally getting the attention it has long needed. Too many operators continue to struggle with billing systems that were developed a decade or more ago and have since been remodeled into makeshift solutions that are heavily siloed, are expensive to operate, and can't cope with increasing product and pricing complexity or the need to bring new products and pricing strategies to market quickly. Critical as it is to replace these old systems, the huge scale and daunting expense of such projects—easily approaching US$100 million and more—have made many operators reluctant to proceed.

Operators must analyze their particular needs and business models, and then choose one of an evolutionary or a revolutionary approach. The evolutionary approach works best for operators with relatively modest business requirements, such as more stable operations, a gradual reduction in process complexity, or improvements in time-to-market performance. Typically, this option entails either stabilizing their current systems, if those systems are relatively healthy, or taking a stepwise approach toward enhancing their billing capabilities, starting with simple add-ons and overlays and potentially progressing toward a full migration to a new system.

On the other hand, operators looking to develop business strategies based on sophisticated price differentiation, rapid innovation, new business models, and fully convergent multiplay products will likely need to take the revolutionary approach, turning to best-of-breed systems to capture as much business value as possible. Operators whose systems lack fundamental health will also likely take this path, turning to off-the-shelf billing systems that can meet their modest business needs.

This Perspective explores these two options and provides guidance to operators on how best to move forward.

WHY BILLING MATTERS

In just the past few years, the global telecom industry has changed dramatically. Developed markets have become saturated, business models are converging and recombining, and product offerings have grown more complex as operators compete to offer customers the most attractive bundles of services. So it is no surprise that operators have focused their IT agendas on consolidating and upgrading their customer-facing capabilities, both to attract new customers and to better manage and leverage the ones they already have.

In some cases, operators are investing tens and even hundreds of millions of dollars into boosting their transactional and analytical customer relationship management (CRM) capabilities, including customer data integration, multi-channel customer management, contact center automation, next-generation campaign management and customer insight, and online marketing.[1]

This urge to improve the customer experience, however, has not yet been extended to the process of billing customers for all these new products and services. The major billing upgrades of the 1990s, primarily in mature markets, left operators with no pressing technical reasons for additional major improvements, other than selective add-ons such as the ability to bill for content. More recently, the anticipated move

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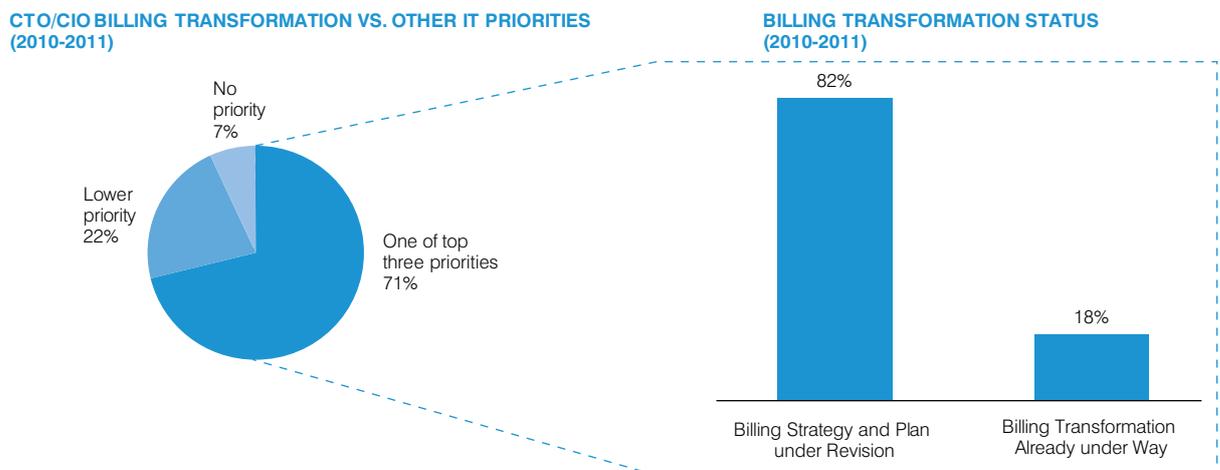
to flat-rate billing and uncertainty about the convergence of fixed and mobile operations stalled the upgrade of billing technologies, thanks to a perceived lack of business need.

A recent series of interviews Booz & Company conducted with IT leaders at telecom operators around the world tells us, however, that billing is quickly moving back onto IT's front burner at many major telecom operations, for a variety of reasons (*see Exhibit 1*). Executives are experiencing firsthand the critical role of the billing process in supporting new products and pricing models, bringing them to market quickly, improving revenue capture, and reducing costs. The path they should take in upgrading their billing capabilities, however, is less clear—cautious, incremental evolution or aggressive, greenfield revolution? That will depend, in our experience, on each operator's business requirements and technology realities, and a realistic analysis of the economic benefits to be reaped.

Exhibit 1
Billing Rises to the Top of the Telecom IT Priorities List

CTO/CIO BILLING TRANSFORMATION VS. OTHER IT PRIORITIES (2010-2011)

No priority 7%

Lower priority 22%

One of top three priorities 71%

BILLING TRANSFORMATION STATUS (2010-2011)

82%

18%

Billing Strategy and Plan under Revision

Billing Transformation Already under Way

Note: Based on interviews with 55 CTOs/CIOs of fixed, mobile, and virtual operators in Europe, the U.S., Middle East/North Africa, and Asia/Pacific.
Source: Booz & Company analysis

DRIVERS OF CHANGE

The competitive demands of the 21st-century telecom market reveal much about why billing has risen to the top of the IT agenda at many telecom operators.

- *Increasing product complexity:* The rise of next-generation networks—everything from fiber to 4G networks based on long-term evolution (LTE) technologies—is driving the creation of a large number of new communications product opportunities, including increasingly complex bundles of fixed and mobile offerings, entertainment, applications, and other value-added services. As these products enter the market, the ability to bill efficiently for both traditional and converged products will become a necessity. This capability will also need to be extended to third-party partners that deliver apps, content, or value-added services through revenue-sharing agreements.

  Product innovation is also blurring the line between traditional prepaid and postpaid billing models as operators begin to offer products such as hybrid bundles that integrate prepaid and postpaid plans with the aim of differentiating themselves in saturated markets. This trend will only further complicate the billing process. And as operators develop more sophisticated multibrand strategies that target specific customer segments, they will need to develop the ability to bill for multiple virtual network operators within a single network and system infrastructure.[2]

- *Increasing pricing complexity:* With the rise of ubiquitous high-speed networks and product bundles, the trend to flat-rate pricing appears to be slowing. Creative, flexible pricing structures have become a strategic differentiator, especially in increasingly competitive mature markets, where tariffs with "cost-airbag" spend threshold features, try-and-buy schemes, dynamic usage-based discounts, and social/community-based pricing schemes have become popular. Even flat-rate plans are becoming more complex, with monthly flat rates being joined by flat fees per call, per day, for specific time windows, or as value-added services within a bundle. Most advanced operators run dynamic discounting schemes as a means to optimize network load distribution and respective capital expenditure requirements, moving away from traditional fixed-price plans.

Creative, flexible pricing structures have become a strategic differentiator, especially in increasingly competitive mature markets.

Increased product and pricing complexity is also making the task of billing for commercial accounts more onerous, especially given the many various account levels and thousands of separate employee account holders.

- *Time-to-market:* Given the rapidly multiplying number of products, services, and pricing plans, and the shorter and shorter product cycles, it is imperative for operators to be able to push products into the market and implement pricing changes quickly. Over time, however, the billing systems purchased by operators in the 1990s have been heavily customized, leaving them with diverse sets of virtually bespoke, often independent billing platforms for fixed and mobile, data and voice. Product features are frequently hard-coded in flat-hierarchy product codes, for instance, making it very costly and time-consuming to change billing schemes to accommodate bundled products. Worse, some operators continue to depend on homegrown billing systems in a "stovepiped" architecture with no connections between the types of communications at all.

- *Cost and legacy risks:* The lack of flexibility and scalability isn't the only problem associated with legacy billing systems. Operators that continue to depend on legacies face higher costs and significant business risks, even as such systems reach their operational limits.

Planning for, building, and running billing platforms has long been one of the biggest IT costs for telecom operators, eating up 30 percent or more of IT budgets. Now, as margin pressure increases, the need to leverage new technology to reduce this expense is clear. Indeed, we have seen several operators that focus on prepaid offerings generate significant cash savings by moving their online billing to newer, more efficient systems outside the traditional intelligent network (IN) domain.

Moreover, legacy systems have shown themselves prone to outages and other glitches, putting operators at risk for unhappy customers and real loss of revenue—and very bad publicity. If operators can't bill properly, they tarnish their reputations and lose money. This extends to third-party partners, with whom many operators have contractual revenue-sharing agreements. Poor billing practices can lead to compliance risk as well, given tightened legal requirements surrounding customer data privacy and consumer rights protection.

In addition to the many reasons older billing systems may need upgrading, the technology itself has advanced significantly in the past five years. Commercial off-the-shelf (COTS) systems have become more flexible and more easily configured, greater standardization of functional segments (summarized, for example, in eTOM, a framework defined by the industry association TeleManagement Forum) offers increased flexibility, and service-oriented architectures allow reuse of numerous components. As a result, many customized systems have been rendered obsolete. And many of the new COTS systems can support new data and multimedia services and complex products and product bundles (*see "The State of the Billing Solution Market," page 6*).

We see many operators already caught up in the billing dilemma: Their current systems are no longer up to the task of billing flexibly and efficiently for the many new complex products coming to market, while keeping customers happy. Yet the sheer cost—upward of $100 million—and scale of designing and implementing a new system are making many operators hesitate. The key question: What's the right strategy for resolving this dilemma?

The State of the Billing Solution Market

Every vendor wants to create some "buzz" in the marketplace. For some time now, providers of telecom billing technologies have been touting "convergent billing." No surprise there, given the industry-wide importance of convergence and the immense opportunity it gives vendors to push their new billing platforms.

At the same time, the supplier space has seen lively consolidation activity, as players reposition themselves to build more comprehensive convergent billing capabilities. Suppliers such as Amdocs, Comverse, and Convergys that in the past have had a clear offline, postpaid billing focus are enhancing their product lines by offering compelling convergent products that include online charging capabilities. Network equipment suppliers such as Ericsson, which recently acquired LHS, a leading postpaid solution provider, are complementing their IN/prepaid capabilities with offline charging. And global IT software vendors are entering the market from their more familiar ERP, CRM, and business intelligence territories, aiming to develop comprehensive business support system (BSS) solution portfolios. To this end, SAP acquired Highdeal, and Oracle bought Portal. Yet the market remains relatively fragmented—Amdocs is the only player with a sizable market share.

In essence, every vendor is focusing its innovation efforts on being able to offer a similar set of capabilities:

• Unified product catalogs and convergent billing plans

• Prepaid/postpaid functionality convergence

• Rate plan flexibility (rule-based rating)

• Horizontal and vertical scalability

• Centralized subscriber management

• Comprehensive and easy-to-use tool set to design tariffs/discounts

• Application pre-integration with adjacent domains like CRM, ERP, or data warehouses

While vendors all pursue similar roadmaps, their stance towards exposing API within the billing stack varies significantly. For example, several vendors do not provide access to the interfaces among service control points, balance management, and rating, essentially creating a boxed solution. Others, in contrast, de-layer their solutions and allow more flexibility to connect third party solutions.

Buyers should remain cautious. In our experience, too many investment decisions are made prematurely and ultimately have to be reversed at significant cost and pain. Modern billing systems offer significantly greater product and pricing flexibility and functionality. Yet many vendors fail to live up to claims of being able to provide "pre-integrated convergence." Given the long histories of the development of these systems, including frequent acquisition of key components, sometimes the only aspect of the system that's truly integrated is the solution's brand name.

It is likely that a number of smaller, second-tier players will fall behind in the development of innovative product components. Still, they may offer a more economical solution for smaller, cost-conscious operators. Given the ongoing consolidation in this space, however, committing to a single vendor for an end-to-end billing solution may not be wise; operators that do so run the risk of depending on less innovative systems from vendors that may disappear at any time.

A final word of warning: Convergence is unquestionably a key trend in the telecom market. By itself, however, convergent billing may not be a sufficient reason to jump into what, for many operators, would be the largest IT project they've attempted in a decade. For most near- and middle-term business requirements, reasonable "workarounds" might still do the job.

EVOLUTION OR REVOLUTION?

Unfortunately, there is no easy "silver bullet" answer to that question. It is tempting to see the options as black and white—either to choose a more cautious, sensible, and adequate evolutionary approach, or to go for the revolutionary, top-to-bottom refit. The right answer, however, is more complicated.

- *Evolution:* As critical as convergence has become in the current telecom market, not every operator is in need of an entirely new, convergent billing system. This is especially true if the operator's billing system needs are relatively modest: more stable operations, a gradual reduction in process complexity, or improvements in

time-to-market performance, for instance. Billing for basic fixed/mobile integration that supports static product bundling or a single, consolidated bill for all services can also be achieved by intelligently overlaying an integrated system—through a "rebiller" approach, offline data synchronization, or simply at the bill presentment layer, for instance—which may be sufficient for many operators, at least in the middle term. And it doesn't require a hugely disruptive greenfield renewal exercise.

However, an evolutionary strategy has its limits, especially for operators that can make the business case for a tightly integrated, converged, or real-time billing system that incorporates such features as real-time thresholds, integrated balance management across fixed and mobile subscribers, or a combination of prepaid, postpaid, and event-based services.

- *Revolution:* Some operators have billing systems that are inflexible, slow to change, costly, and unstable, and yet they are planning to follow a business strategy that relies on sophisticated price differentiation, rapid innovation, and fully convergent multiplay products. As such, they are likely looking for significant increases in billing efficiency—and the money to pay for it. If so, they may be good candidates for an entirely new billing system.

Usually, however, billing transformation plans aren't so easily determined. We believe that billing processes must be tailored to each operator's product and price differentiation strategy. There are many shades of gray between a sophisticated, full-service strategy designed to prosper by driving innovation through service convergence and the integration of new business models, and a lean and mean, "no-frills" strategy designed to benefit from simplicity and low costs.

STRATEGIC DECISIONS

Operators looking to devise the most suitable billing strategy must first develop a clearly thought-out, workable business differentiation strategy, including strategies for growth, product differentiation, pricing, and the like. Is the goal to be the "innovation leader" or the "no-frills player"? These strategies must then be matched with a realistic assessment of the operator's current billing environment—its "platform health," which includes architectural complexity, time-to-market of changes, scalability, system stability, and IT costs. *Exhibit 2* offers an assessment tool that operators can use to clarify their position in their markets, depending on differentiation strategy and platform health. Operators can then position themselves on the grid in *Exhibit 3* (*page 10*) to better understand which one of four very different strategies they should consider.

- *Stabilization:* Operators with generally healthy billing systems that are not pursuing radical, innovative business strategies should be looking to stabilize their platforms through a very focused set of activities aimed at extending the life cycle of existing platforms if business demand allows. This strategy avoids the high investment cost and major disruptions of a greenfield system, but at the risk of falling behind the innovation curve. That may be perfectly acceptable, especially in certain parts of the business, such as PSTN, where innovation may not be a necessity, or for operators that must concentrate on bottom-line efficiency (*see Case Study 1: "Sweating the Assets"*).

- *Stepwise differentiation:* Operators looking to pursue more ambitious but still "mainstream" competitive strategies, or whose billing platforms are less healthy, should consider a phased approach. Here, the process involves integrating existing platforms more tightly, at the bill presentment and rebilling levels, for instance. The longer-term goal: to move to more complete platform convergence. Operators with complex product and pricing offerings, and with highly diverse subscriber bases, may not find a big-bang migration to be the best strategy. Customers who remain content with "legacy" products and prices are often the most profitable, and operators are rightly unwilling to sacrifice that revenue by migrating these valuable customers into new, typically more economical price plans solely to simplify their billing technology.

  Moreover, all-out billing transformation projects are notoriously difficult to complete successfully. The effort needed to complete the migration, testing, and verification is easily underestimated, and these projects often lead to failure—not only for technical reasons but also because of the people and change management challenges involved. Given these concerns, established operators should carefully consider the effort, expense, and risk required to shape the right "evolution paths" in their billing strategy (*see Case Study 2: "Step-by-Step Convergence"*).

- *Best-of-suite:* This option is only for operators willing to embark on a large-scale transformation to a true greenfield billing system that fully integrates billing for current and potential convergent products

Exhibit 2
Billing Strategy Drivers

DIFFERENTIATION STRATEGY			PLATFORM HEALTH		
← Innovation Leader	Strategic Dimensions	No-Frills Player →	← Excellent	Health Dimensions	Gridlock →
Base & ARPU growth	**Growth Strategy**	Base & ARPU defense	In sync with business needs	**Functional Fit**	Business demand backlog
Multiplay	**Product Portfolio Strategy**	Single play	Days to deploy changes	**Functional Flexibility**	Months to deploy changes
Convergence	**Product Integration Strategy**	Separation & focus	Compliant	**Operational Stability & Security**	Outages, leaks & errors
Personalized experience	**Service & Support Strategy**	No frills	On-demand flexibility	**Scalability**	No way to grow
Superior value	**Pricing Strategy**	Low cost	Investment priority	**Financial Base**	Constrained funds & cost cuts

Source: Booz & Company analysis

Case Study 1
Sweating the Assets

The fixed-line billing system at a large integrated operator was essentially unchanged for almost a decade, and while the operator had no business need to upgrade the system, the mainframe-based platform was showing end-of-life-cycle symptoms that could not be ignored. Ongoing billing problems for new products had become so frequent that subscribers were growing dissatisfied, and negative stories had begun appearing in the media. Multiday system outages were occurring as often as once a quarter, causing millions of dollars of lost revenue. Every pricing change had to be "hard-coded" into the legacy platform, increasing the possibility of human error and resulting in yet more revenue loss. And the labor costs involved in synchronizing pricing changes across multiple platforms were rising rapidly.

The operator's product strategy called for the eventual phaseout of a number of legacy "copper services," to be replaced by fiber-based, next-generation access technology—and its own billing system. So rather than replace the fixed-line billing system, management decided to stabilize it. To do so, the operator froze the "copper" product mix, limited any further changes to the system, and outsourced maintenance of the system to a third-party provider. Subscribers were given incentives to switch to new next-generation networking (NGN) products, and when they did, they were migrated to a new billing platform. And a new bill formatting system was introduced that took the data from the legacy system, consolidated it with other product platforms such as media, and produced a single statement for subscribers.

Stabilizing the system and letting it "die in a controlled fashion" turned out to be far more economical than replacing it.

Case Study 2
Step-by-Step Convergence

A medium-sized European operator had developed a strategy to integrate its fixed and mobile businesses to cross-sell, bundle, and eventually converge its product sets. The operator had first considered a completely new greenfield billing solution to support the strategy; it quickly became clear, however, that this approach would entail significant slowdowns in its efforts to maintain growth, not to mention the large cash investments required. So the operator devised an evolutionary, step-change transformation strategy to support business and product road maps within a relatively tight funding envelope.

Clarifying the real business need for true convergence played a major role in developing the actual step-change strategy. "Tightly coupled" fixed and mobile products would require full transparency into call detail records across platforms to enable convergent discounts and price plan options, while "loosely coupled" product bundles would have much less complex IT requirements. And since the operator was planning to offer "loosely coupled" products for the next three to five years, a greenfield converged system would have delivered much more functionality than the business needed. At the same time, the operator assumed that the fixed-line business would remain static until the switch to NGN had been completed, while the mobile business would remain more dynamic and challenging.

Given these parameters, the operator designed a billing transformation strategy that consisted of several development phases. In the first phase, urgent operational issues would be stabilized by replacing mainly fixed business components of the billing environment nearing the end of their life cycles. This would be accompanied by enabling basic billing for product bundles—in part by using the wholesale gateways on mobile and fixed billing platforms to bill product bundles on either platform while maintaining the current systems and investments. For the middle term, the operator planned to work to improve provisioning speed and time-to-market for more complex bundles through a newly converged enterprise product catalog and order management system, opening up a potential path to further billing stack consolidation at a later stage.

Interestingly enough, this strategy proved to be much less costly on a five-year basis than any greenfield approach envisioned. This operator's experience thus demonstrates that a creative, value-adding billing transformation strategy can be significantly less costly and disruptive than a radical migration to a new convergent system, especially if a middle-term need for complex convergent functionality does not exist.

and services, and even completely new, multi-industry business models such as energy or insurance billing. Operators considering such a sweeping change should carefully weigh the benefits of the new billing capabilities they are looking for against the enormous cost, business disruption, and risk involved in such efforts. If the business cases exist, they should be validated with rock-solid analysis and include appropriate risk provisions to avoid unpleasant surprises (*see Case Study 3: "A Real-Time Billing Revolution"*).

- *Lean COTS:* A highly standardized, streamlined off-the-shelf package—perhaps even provisioned via remote hosting or following a software as a service (SAAS) scheme—can be an attractive solution, especially for operators working at a smaller scale, with limited business complexity, or with very
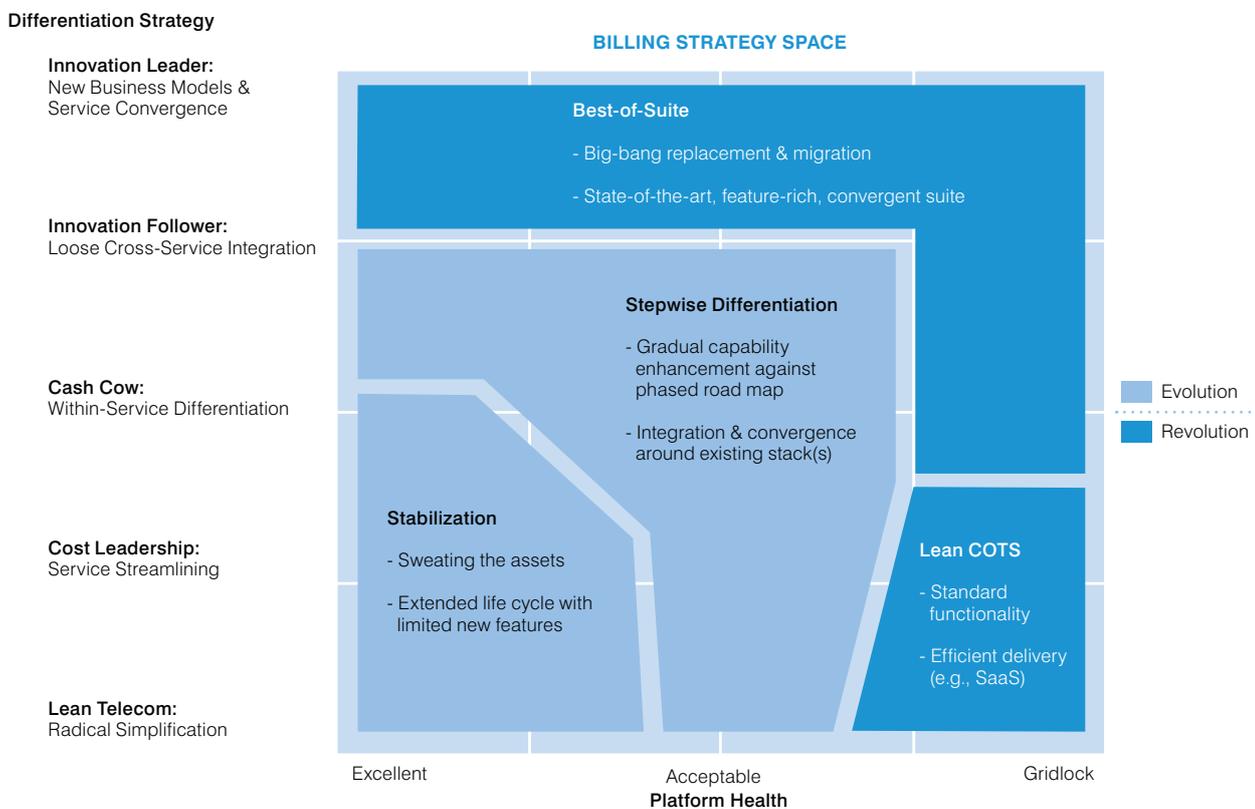
outdated billing capabilities. They can cut costs significantly, increase billing efficiency by requiring strict adherence to defined functional standards, and even provide functional improvement. The downside: a lack of product and pricing flexibility (*see Case Study 4: "Billing Outsourced"*).

Choosing a billing transformation strategy becomes significantly more difficult for smaller operators. These operators, especially those with fewer than 5 million customers, face levels of business complexity—the variety of products and pricing schemes and the degree of fragmentation of the customer base, for instance—that are comparable, if not equal, to those of their larger brethren. So the scope of their transformation projects and the effort required are similar. Yet the top- and bottom-line benefits of such projects depends largely on the scale of the business. Below a certain scale,

the time required to reap an adequate return on investment in such projects is simply uneconomical, leaving smaller operators in a "complexity trap"—any efforts to remedy their very complexity are not worth the effort.

The alternative, to "lie down and die slowly," is equally unattractive, so smaller operators often find themselves forced to explore more radical strategies to remain competitive with their larger rivals—such as entering into international partnerships to share billing services or outsourcing their billing to service providers that can operate at efficient scale levels. But without a clear and compelling business-driven transformation case, no large-scale billing project makes economic sense; only rarely have we seen a compelling case for transformation for purely IT reasons.

Exhibit 3
Four Potential Telecom Billing Strategies

BILLING STRATEGY SPACE

Differentiation Strategy

Innovation Leader:
New Business Models & Service Convergence

Innovation Follower:
Loose Cross-Service Integration

Cash Cow:
Within-Service Differentiation

Cost Leadership:
Service Streamlining

Lean Telecom:
Radical Simplification

Best-of-Suite
- Big-bang replacement & migration
- State-of-the-art, feature-rich, convergent suite

Stepwise Differentiation
- Gradual capability enhancement against phased road map
- Integration & convergence around existing stack(s)

Stabilization
- Sweating the assets
- Extended life cycle with limited new features

Lean COTS
- Standard functionality
- Efficient delivery (e.g., SaaS)

Evolution
Revolution

Excellent   Acceptable   Gridlock
Platform Health

Source: Booz & Company analysis

Case Study 3
A Real-Time Billing Revolution

A rapidly growing mobile operator in a large Asian market with a big proportion of prepaid subscribers was being beaten to market by competitors that could launch innovative pricing schemes much more quickly. Worse, the operator had outgrown its existing IN-based prepaid billing architecture and had begun experiencing serious operational problems that were reducing service quality. The existing heavily customized system could not provide either the fast time-to-market or the flexibility required to keep up with the competition.

Research showed that state-of-the-art prepaid and postpaid converged billing systems were available that could provide the desired flexibility and time-to-market while offering both scalability and cost efficiency. So the operator decided to scrap the current architecture and implement a complete greenfield system based on IT technology rather than the old network technology. By doing so, the operator succeeded in realizing cost synergies as well as richer product propositions including hybrid prepaid and postpaid plans and real-time billing features such as spending limits.

Case Study 4
Billing Outsourced

A major mobile phone operator was looking to increase market share by reselling network capacity through a portfolio of branded mobile virtual network operators. By devising a focused customer value proposition for each targeted segment, the operator succeeded in limiting both the scale and the complexity of its billing needs. As such, the operator determined that integrating the new billing systems into the systems of its incumbent business, a highly complex process, made no economic sense.

So despite its mature in-house billing capabilities, the operator decided to take a different, more radical route. It outsourced all of its new BSS operations to a service provider on a platform hosted by a mobile virtual network enabler, which offered a multi-instance billing stack with state-of-the-art but non-customizable real-time billing capabilities. In doing so, the operator knowingly traded limited flexibility constraints for faster implementation speed and low ongoing operational costs.

Without a clear and compelling business-driven transformation case, no large-scale billing project makes economic sense; only rarely have we seen a compelling case for purely IT reasons.

CONCLUSION

Telecom operators around the world are in a race to offer customers a multiplicity of converging products and services, to be paid for by equally complex and various pricing plans. The result: greater and greater pressure on often outmoded billing systems to account for and collect payment for all these differentiated plans. Telecom executives are becoming painfully aware of the need to make sure their billing systems can keep up with the fast pace of product and pricing change.

Unfortunately, finding the right billing transformation strategy hasn't gotten any easier. Executives must balance hard-core business requirements, technology realities, and economic benefits, and distinguish careful analysis from market hype. The options: Design an evolutionary road map that is tailored to deliver business stability and capability improvements at the right speed and cost, step-by-step. Or make a well-grounded, deliberate decision to engage in a complete billing revolution. Either path will be daunting, but no operator can afford to put the decision off—and allow competitors to reap the benefits of better revenue capture, faster time-to-market, and more satisfied subscribers.

Endnotes

[1] See "Multi-Channel Customer Management" (www.booz.com/media/uploads/Multi-Channel_Customer_Management.pdf), "Beyond the Mass Mailing" (www.booz.com/media/uploads/BeyondtheMassMailing.pdf), and "Online Customers, Digital Marketing" (www.booz.com/media/uploads/Online_Customer_Digital_Marketing.pdf).

[2] See "The Rise of Mobile Marketing" (www.booz.com/media/uploads/Rise_Mobile_Marketing.pdf).

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