

Integrating IT Holds Key Competitive Advantages for Cellular Carriers

Abstract

This paper explains how cellular communications companies can utilize an integrated information technology (IT) architecture to improve customer service and employee productivity. It asserts that supplementary services not core communication services are the keys to true competitive advantage in business today and that integrated IT is the primary enabler of competitive advantage in the personal communications industry. The paper calls for a shift in carriers' view and use of IT and offers specific examples of how carriers can benefit from integrated IT.

Introduction

The growth of wireless communications, fueled by the explosive expansion of carriers' subscriber bases, has created a rapid industry-wide maturation that is among the most dramatic events in today's business world.

The global trend toward increasing the power of the individual and the need for greater organizational and geographical communications independence are driving the demand for growth, while the advent of low-cost, advanced technology products is providing an increasing supply of available solutions. In effect, business trends and the digital revolution have spawned a revolution in personal communications, and - in some ways - the medium's future has never seemed more secure.

Still, while these developments augur well for cellular communications as an industry, individual carriers today are facing numerous changes that must be addressed if they are to succeed in the coming years. These changes include:

- Revenue reductions per subscriber of more than 50% since the advent of cellular services
- Increasingly complex technology solutions
- Increasingly sophisticated services
- Rising and broader-based competition from existing and new competitors

With these business and technology trends likely to proceed at an even faster pace, forward thinking carriers are reevaluating their basic notions of doing business and undergoing a dramatic change in the way they view IT to support their operations and services. This paradigm shift has led many telcos to use IT to achieve business objectives and improve competitive positions, and telecommunications— in many

quarters — is now being viewed as an integral part of the IT industry.

Carriers making this paradigm shift are doing so in two significant ways: First, they're changing their view of IT from a cost or business burden to a positive source of value or business contributor. Second, they're revising their perception of IT as a tool to solve isolated problems and beginning to view it as an integrated solution to organization-wide problems without regard to artificial structural or technological boundaries.

This need for a new business paradigm and improved IT use becomes even clearer with a closer look at how carriers are currently using it. Cellular companies today spend roughly four to nine percent of revenues on conventional IT solutions such as billing, and customer service. Add declining subscriber revenue forecasts and the added difficulty of adapting conventional IT systems to provide new services and these costs could exceed an unacceptable 10% of revenues within the next five years.

By contrast, using integrated IT—as expressed in the following two examples—creates a dramatically different result.

1. Use of IT to improve sales/marketing effectiveness reduces net churn from 2.0% to 1.9% per month. A cellular company with only 10,000 subscribers will thus gain one net new subscriber per day or a five year revenue boost of more than \$3,000,000 based on a \$70 average monthly bill.
2. Use of integrated IT to improve Customer Service Representatives (CSRs) productivity increases customer service productivity 35%. With the U.S. ratio of CSRs to customers at 1500:1 and CSRs' fully loaded salaries averaging \$36,000, carriers can save approximately \$.50 per bill. A carrier with 50,000 subscribers can thus gain a cost/profit increase greater than \$3,000,000 over five years.

In cellular's early days, before competing networks were well established, carriers gained significant competitive advantage core service offering/network coverage from rival providers. In the 1990s, however, customers are demanding more and better services, and subscriber loyalty is more difficult to maintain. In addition, carriers' operating costs are going up, and, although the number of users have sharply increased, monthly revenues per user have fallen to nearly \$70 - a figure many experts expect to decline further if current trends continue and more vendors increase their market penetration of new classes of subscribers.

By integrating IT, carriers can:

- Reduce the costs of customer service, billing and network operations
- Raise CSR productivity and morale
- Introduce lower-cost, higher functionality services that customers demand

- Capitalize on new business opportunities
- Increase customer satisfaction and customer loyalty

Traditional IT Paradigms

Before carriers integrate IT, they must first modify their view of technology and awaken to the changing needs of the cellular marketplace. Prior to cellular services, carriers exercised monopolies in designated locations, particularly local exchange areas. Once cellular services became available and competition was introduced, however, carriers faced a new need to differentiate products and services.

Currently, while all carriers are applying technology to deliver core services, most employ it for internal operations alone. IT is viewed as an expense which must be controlled instead of a resource that can be leveraged for additional service, productivity, and profit. As a result, few carriers see IT as a means to deliver value and services to customers, and most IT systems are isolated point solutions that automate individual processes. Unable to integrate customer service, billing, and network systems, these solutions are unable to provide the integrated customer service, billing and network systems that cellular customers demand. Billing systems, for instance, cannot usually communicate with financial systems. Customer acquisition systems typically have no connection to inventory systems, and call detail systems generally have no link to enterprise management and business systems.

The illustration below of a knight readying for battle with a sword while his advisors exhort him to use a machine gun captures the two new paradigms carriers must embrace in the 1990s. Mired in a traditional mindset, the knight is unwilling to change weapons because he cannot see the benefits. The first paradigm shift he needs to make is to grasp the machine gun's value instead of seeing it as a cost. The second shift requires him to move from a single, isolated technology - i.e. the metallurgy that produces the sword - to integrated technologies such as metallurgy, chemistry and ballistics, that will allow him to develop and use the machine gun.

Identifying the knight's two advisors fully completes the analogy. The advisors are the personal communications company's information and network engineer and have the expertise to put the new paradigms into practice. However, they apt to do so only if the knight—i.e. the top executive—makes the paradigm shift himself and puts his authority behind the task.

In the real world, traditional IT paradigms are causing carriers - particularly CSRs - to duplicate many customer service efforts. Productivity is at an ebb, CSRs are often frustrated, and churn continues to be unacceptable. Far from customer-driven, these IT systems are causing many carriers' existing services to

falter, and - in most cases - are totally unprepared to deliver the supplementary services, which - consultant Christopher Lovelock's research reports - will provide the strategic competitive advantages service businesses need to succeed.

The Value of Supplementary Services

According to Lovelock's 1989 study of service businesses, effective core services alone are no longer sufficient to sustain profitability in the 1990s. An airline, therefore, can fly passengers safely to the right airport and a restaurant may provide tasty, unspoiled cuisine. However, in today's tight markets neither one may succeed. The critical distinction businesses today must provide, therefore, is the supplementary services that add value to the core deliverable, enhance customer convenience, and stand out from the competition.

Airlines providing such ancillary services as speedy check-ins, appetizing meals, and superior frequent flyer programs are thus more likely to prosper than competitors lacking these programs and processes. Restaurants which furnish free valet parking, free deliveries, and discount coupons, are more likely to attract customers and earn higher revenues than eateries which provide one or none of these services.

Likewise, in wireless communications, transmission quality and coverage are the industry's core services, but with the FCC's licensing of competitive carriers and further licensing in other wireless technologies likely, these services no longer provide enduring competitive advantages. A carrier may introduce a new cell site in an untapped area, but eventually competitors will also access the area, and subscribers will ultimately make their choice for reasons beyond coverage.

Therefore, carriers can best maximize their market share and increase customer loyalty by developing and refining supplementary services. These services will provide competitive advantage at least until competitors acquire them and they become part of the core service area. Some examples of these ancillary services include the following.

- **Service Acquisition:** Carriers must provide customers with convenient access to all services. Points of presence locations must easily accessible. Inquires must receive a rapid response, and application processes must be simple, clear, and fast.
- **Expanded Services:** Carriers must deliver additional services such as paging, voice mail, data transmission, message services, personal phone numbers, and many other intelligent network services in a smooth, efficient, and convenient manner.
- **Information & Advice:** Carriers must offer simple access to information sources that enhance customer safety and facilitate travel. Such services may include road and weather reports, communications with nearby state police or road service vendors, and widespread roaming availability.

- **Problem Resolution:** Carriers must provide prompt, reliable service recovery to maintain customer loyalty. Customer service representatives must have ample means to respond rapidly to problems and questions ranging from billing inquiries, to service usage, geographic service availability, and service interruptions.

Service Utility: Carriers must provide products and services that are easy for subscribers to use and require minimal training, start up time, and installation.

- **Billing Payment:** Carriers' invoices systems be easy to understand and flexible so that invoices are delivered how when customers want them. Invoices must be prepared to suit the multi-organizational needs of major accounts as well as the specific needs of individual subscribers.

A New View and Use of IT

Carriers seeking to develop superior supplementary services must begin by revising their strategic priorities. Use of technology should be based upon a measurement of customer value not on cost or internal user priorities. Carriers should rank customer service and value as the number one priority; market share and profitability will follow as long as the business plan and execution are sound. Mission statements must be redesigned to reflect the renewed commitment to service. Executives must share the new mission with mid-level managers and grass roots employees, who must be empowered and rewarded to accomplish it. Personal communications companies, in particular, must partner with vendors and one another to achieve these goals. Resources must be evaluated and applied to develop a new customer service approach, and - most importantly - carriers must change their view and use of information technology (IT).

In the industry's early days, carriers viewed electronic information as a means to improve internal efficiency and used stand alone, point technologies that automated individual processes. Many acquired expensive systems to justify rate hikes, increase profits, and reap maximum investment returns. Some systems actually impaired the smooth delivery of services, and only a few farsighted carriers recognized the benefits IT could bring to customers.

Today, IT provides core capabilities, and is the key enabler of supplementary services. Advances in real-time systems, networking, computer-controlled networks, software development, and graphical user interfaces (GUIs), coupled with open, client server computing, now allow carriers to develop more and better ancillary services that cellular companies previously could only dream to provide.

In the competitive, cost-conscious 1990s, the challenge for cellular companies is to unite IT advances with the new customer service paradigm. IT applications, as a result, must be measured by the value they provide subscribers and the business benefits carriers are likely to achieve. Carriers therefore must:

- Determine how a prospective IT system will facilitate delivery of new and existing services;

- Assess the system's long-term business impact;
- Determine if the system is affordable.

Customer loyalty as well as customer satisfaction issues must be fully explored. Questions regarding the system's ability to improve existing and future services must be answered before decisions are made, and the means by which the system will be implemented must be completely clear to the carrier.

Integration is Key

The opportunities to apply integrated IT exist at every point along the customer life cycle from initial service acquisition and before to problem resolution and expanded services and billing. A CSR using IT to activate a new customer, for instance, can accomplish tasks in less than 10 minutes that would have previously taken days to complete.

These include:

- Establishing the Customer's Account
- Processing a Cellular Service Usage Application
- Verifying Customer Credit
- Locating Customer's Selected Phone in Inventory
- Activating Customer on Cellular Network

by provisioning all Relevant Network Elements

Applying IT to achieve this level of service is an extremely complex process that requires the integration of a number of tasks and technologies. User-friendly software must be developed to process order entry information. Communication links to outside credit authorization bureaus must be

established. Additional links must be established that connect CSRs' computers to store and/or warehouse inventories. Customer data must be transferred to carriers' customer care or customer management systems so that CSRs can begin servicing the new account immediately. Switches must also be provisioned to activate the customer on the network immediately and provide the complete range of services to which the customer has subscribed.

Network interfaces, based on real-time information, is also necessary for carriers seeking to monitor and manage customer usage. New subscribers often use their cellular phones without fully understanding the costs. Some even discontinue service after receiving the bill. Real-time usage monitoring enables CSRs to inform customers who are unknowingly acquiring large bills. Such notification can prevent churn which often occurs when customers' experience "sticker shock" upon receiving their first bill.

IT Improves Bill Delivery

Integrating IT also enables carriers to deliver a full range of supplementary billing services. Electronic billing systems providing national account, multi-department, and even on demand rental billing, for instance, draws upon

such other IT functions as customer acquisition, customer service, call detail collection and rating.

On demand rental billing, in particular, is a novel innovation that EDS has already brought to the rental car industry. Customers simply acquire access from the rental car

clerk. Data routers collect call detail from the appropriate switch as each call is made. Call details are then rate in real-time as needed and are instantly added to the subscriber's bill. Itemized charges are electronically prepared and presented to customers with their rental car bill in a prompt, reliable manner.

The application allows carriers to offer phones at airports, hotels, and exhibition centers, and can generate significant, incremental, high-margin revenues.

IT Support for Expanded Services

Support for supplementary service utilizations such as roaming and personal telephone numbers also requires the integration of a variety of IT functions. The databases of network elements, such as switches and home location registers, must collaborate so that customers can roam automatically and receive their call wherever they travel. The advent of first-generation personal telephone numbers is another service innovation that requires the integration of customer service and networking capabilities to:

- Acquire the Service
- Provide the Service on the Network
- Manage the Service
- Bill the Service

In this scenario, callers dial one phone number, which is linked to all phones the customer maintains - including home, business, faxes, cars etc. A service logic program located within the network routes each call based on scheduling information provided by the customer. Customer acquisition systems provision the customer on both the billing system and the network elements required to provide the customer's full range of services. Access to the network's switch provisioning system and network database systems is automatic, and each of these systems is integrated to ensure optimal delivery of the service.

Superior Problem Resolution

Integrating the problem resolution process enables carriers to significantly improve service, and can dramatically reduce churn. Today, with carriers enduring churn rates of 2% a month, many companies are losing up to 25% of their customer database every year. By providing comprehensive customer service, particularly prompt service recoveries, carriers have the potential - based on current profit margins of 50% - to increase earnings \$3,000,000 in five years simply by acquiring and retaining one customer per business day.

With an integrated problem solution system, carriers with 100,000 subscribers whose CSRs average 15 calls per hour can maintain 5 additional customers each day merely by preventing churn for only one of each 1,000 customer calls. That alone, is a \$15 million increase in five years, which would likely fund a considerable portion of carriers' IT investment. Recent studies demonstrate a very high correlation between service recovery and customer loyalty. According to one report, customers who have experienced satisfactory problem resolutions are twice as loyal as customers who have never had a problem.

The technologies that must be applied to integrate the problem resolution process include the following systems:

- Customer Service
- Network Status
- Customer Information Databases
- Call Detail Database

Functioning transparent to the customer, integrated Problem Resolution systems maximize subscriber convenience and minimize service interruptions - ensuring a high rate of loyal, satisfied customers and a lower rate of churn.

Internal and External Become One

Carriers should appreciate that customers today are not concerned with cellular companies' internal operations, and that subscribers' first priority is quality. Integrated systems therefore must not only envelop processes innate to carriers, they must also extend to outside vendors on which quality service depends.

An automated Customer Acquisition system, for instance, must interface directly with an external credit authorization bureau and possibly an external inventory system and other carriers' networks. Similarly, an integrated inventory system may establish communication links to leading suppliers, major accounts, and resellers. In addition, a network management system may interface with other carriers' networks as well as major suppliers, resellers, and accounts. In each case, carriers' goal is to provide greater value to customers and to facilitate the delivery of the supplementary services.

The Personal Communications Database

Carriers must establish a common customer database at the core of the services they offer. The customer database should contain a complete body of information about each customer, and integrate the wide range of ancillary services used by specific customers such as paging, telephony, and PCN applications.

The database should integrate all real-time applications, distribution channels, HLR/VLR databases, and information access and analysis data etc. It must also be linked to carriers' acquisition, customer service and Customer Billing systems among others. Using the customer database, carriers can electronically produce

one homogeneous bill with multiple services, thus simplifying the payment process for the customer.

Able to glean the potential needs of existing customers from database information, carriers can target new business opportunities among existing customers for considerably less cost than when marketing to new clients. Carriers thus can deliver more supplementary services to more customers while their revenues dramatically increase, and their relationships with existing subscribers grow stronger.

Designing PCC Architecture

Each cellular company must examine its resources, services, and existing systems when planning to develop an integrated IT solution. MIS departments, supported by personal communications companies like EDS, must prioritize carriers' business objectives and product differentiation strategies, and map an appropriate IT strategy. Carriers must also determine if the data they seek to integrate is available in current point solutions, and if those systems can be used to integrate core and supplementary services.

EDS, for example, designed an architecture prototype that has integrated our services and which we commonly share with carriers to help them integrate IT.

This architecture is broken down into the following systems and subsystems:

PERSONAL COMMUNICATIONS BUSINESS ARCHITECTURE DIAGRAM

The above systems and subsets can provide a number of key assets that enable carriers to reap a healthy competitive edge while dramatically reducing costs. EDS' customer service architecture expedites service calls and responses. Our back office systems enable carriers to integrate billing and financial systems among other executive management functions. EDS' real-time systems provide call detail information, which minimizes exposure to bad debt and fraud, and reduces churn. Finally, EDS' network services improve operational efficiency and provide revenue increasing services such as database marketing and reporting.

Conclusion

IT is not a point solution to one problem. It is an ongoing response to the challenge of integrating business objectives with business processes. IT is also the primary instrument through which carriers can deliver the supplementary services that create competitive advantage. Carriers, therefore, must begin to view IT as a vehicle of value and should develop integrated systems across the entire customer life cycle. Some carriers may want to undertake this process themselves. Others may seek an external source like EDS to provide strategic

business and IT planning, to design IT applications and to operate systems once in place.

Regardless of who builds or manages the system, however, the critical point is that carriers develop the architecture to bring integrated IT to life. Doing so will enable them to introduce supplementary services that create customer satisfaction and loyalty, and provide the competitive edge carriers need to succeed in today's increasingly crowded cellular communications marketplace.