Driving Mobile Commerce in the U.S.:

Who Is Leading Whom?

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Proceedings

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Executive Summary

On August 29, 2001, the Silicon Valley World Internet Center continued its invitation-only series of Think Tank Sessions with a specific focus on the driving factors for mCommerce in the U.S. in both the consumer and corporate markets. Twenty-four corporate leaders, academics, and consultants converged in a knowledge exchange on the following guiding questions:

- Are the key driving factors for mCommerce in the U.S. technological? Social? Standards-based?
- What actual driving factors need to be addressed before we see mCommerce take off in the U.S.?
- What is the time line for the driving factors to coalesce into (new) market opportunities?

The specific driving factors for U.S. mobile commerce were discussed at length, leading to a consensus that the top three factors are usability, contextual marketing and personalization.

Of course, for every driving factor there is an obstacle, the largest of which appears to be the carriers themselves. It was suggested that technology companies should step out of a confrontational role with carriers and help them find a way to pay off the licenses for 3G.

MCommerce could encompass a broad spectrum of usage paradigms and devices. Outdoor mobility, indoor mobility and auto-mobility were defined and discussed, generating lively conversation about conventional mobile-phone networks, the emerging 802.11 LAN market and Bluetooth. Carriers and service providers must figure out ways to deliver contextual services as they move through the different modalities.

The idea of "parasitic networks," in which individuals share broadband connections with roaming or neighboring users, was introduced. In parasitic networks, users install an 802.11 node at their home or business. Users thereby circumvent the business model and billing systems of the carriers, but not the carriers' networks. This is a novel concept, but controversial as a real business model opportunity, as companies have already failed in this arena.

The group discussed 3G networks and how carriers must figure out how to tap the huge investments made in wireless-broadband spectrum and the the possibility that "free rides" on 802.11 nodes could render 3G redundant and costly. Real 802.11 demand may be driven from business adoption, then into the home as users bring their 802.11 devices home from work. Until mobile phones and PDAs (personal digital appliance) use reasonably priced 802.11 options, conventional mobile networks will lead data application adoption on mobile devices. However, currently only one to two percent of mobile-phone users take advantage of data services in the U.S. Will 3G be a key driver or will 2.5G be the bridge to broadband mobile adoption? The question remains unanswered.

Regardless of network speed, MVNOs (mobile virtual network operators) may be a revenue model by which U.S. carriers can enter the data-applications market while sharing the risk with virtual partners. AT&T and DoCoMo announced a partnership and trials in Seattle, and Virgin Mobile partnered with Sprint in the U.S., both hoping to build on their successes in Europe. A key element of this success that has been missing from U.S. carriers' marketing plans is the targeting of services to demographic and vertical groups, something done skillfully by Virgin.

The outcome from this Think Tank Session was the realization that there are no simple answers the U.S. market adoption of mobile applications. The best scenario may be to follow a path of small, incremental steps in the next 12 to18 months, beginning with Instant Messaging (IM) for the youth market, while methodically pursuing larger mCommerce opportunities enabled by broadband, voice activation, and MVNOs in the following 3 to 5 years. Patience may be the most important commodity in the pursuit of mCommerce success -- either patience, or a strong stomach for investment into a highly competitive market where incumbents enjoy deeper pockets and more patience than their nimble counterparts.

Introduction

The particular challenges of the U.S. mobile communications market make entry difficult for purveyors of commerce business models in non-traditional commerce media such as mobile phones and PDAs (personal digital appliance). MCommerce suffers from the exact challenges experienced by Interactive TV business models. The basic question is, "Do consumers really want data applications delivered to a non-data form factor?" At the root cause of apparently low demand for mCommerce in the U.S. may simply be low demand for data while away from the desktop computer, the poor interface to data while using a mobile phone or the bandwidth limitations of mobile environments. Whatever the reasons, the intention of the Silicon Valley World Internet Center's Think Tank Session of August 29, 2001, was to get to the bottom of the question, "Who is Leading Whom? Driving Mobile Commerce in the U.S." Participating companies in the Session included Adjectivity; Barpoint.com; Bay Analytics; Cantina Software; CommerceNet; Covigo, Inc.; DaimlerChrysler Research; Etrieve; Fujitsu; The Information Group, Inc.; Neusoft USA, Inc.; Nokia Research Center; RedKnee, Inc.; Research/Strategy/Business; SoftSource Corporation; Sonera Corporation; Symmetry Communications Systems; T-Nova North America; and independent consultants Dr. William Cureton, Mr. Daniel T. Divine, Mr. Dave Menconi and Mr. Robert Noakes who facilitated the Session.

The working definition of Mobile Commerce for the purpose of this Think Tank Session was:

- Any transaction with a monetary value that is conducted via a mobile telecommunications network.
- A subset of all eCommerce transactions, both for the consumer and business user.
- Applications and services on the mobile phone or other PDAs.

The first issue to be addressed by participants was the very nature of the mCommerce market in the U.S., which is currently elusive and not well defined. Mobile carriers have a simple business goal -- bill more minutes per user, leading to larger ARPU (average revenue per user) in each successive year. Using minutes-based revenue models may be a mistake in the case of mCommerce, but the fact remains that if new services are not going to make a short-term to medium-term impact on the bottom line of carriers, there will be little motivation to market those services aggressively. Since carriers only see a one to two percent uptake of data services on mobile phones, and there is no marked differentiation among carriers offering these services, why would carriers invest in additional services to no effective market?

It could be that we need to figure out the social factors that will enable our culture to embrace mCommerce services.

If there is a market, why does it seem to elude the U.S? Are the key driving factors coming from a technology perspective? Is infrastructure going to define when mCommerce will happen. Are communications standards and protocols going to set the pace for technology development, or are chipset manufacturers going to decide what platform will achieve results first? It could be that we need to figure out the social factors that will enable our culture to embrace mCommerce services. Or will standards drive new applications and services based on some consensus of the many constituents involved in the mobile industry? Perhaps it is a combination of all of these things, something to be vigorously debated among the participants in this Think Tank Session. If there is no recognizable market today, then what factors need to be in place to discover this invisible market before we see mCommerce really take off? And finally, if we can

address all of the driving factors successfully, how long will it be before new services impact the bottom line of the players involved?

Defining Mobility

It was much easier years ago to define mobility in the context of communications. It was simply voice communication on mobile networks. The mobile phone and voice were all that were required to extend ones business existence beyond the desk at the office. Mobile professionals may also have carried a laptop computer, but unless users were technology gurus, the laptop computer and the mobile phone were not going to be connected except through a nightmare of cables and software interfaces.

The 3 Modalities of Mobility

To assist in broadening the discussion into domains beyond cellular telephone networks and voice communications, the idea of separating mobility into three types was offered to the group. **Outdoor mobility**, **indoor mobility**, and **auto-mobility** were defined loosely to allow for interpretation and expansion of the definitions, keeping in mind the U.S. market. Outdoor mobility involves a mobile telephone, it often occurs in a car or while walking and talking, and it leverages a carrier-based mobile network. Outdoor mobility could also include mobile data transmitted over an integrated phone or data device. This model emerges from many carrier / manufacturer partnerships. Indoor mobility is indoor building access, at home or at work. It involves a computing device, PDA or other data-centric device, and it leverages a wireless LAN (local area network) which is connected to the Internet. Indoor mobility may also be wireless-phone based. Auto-mobility allows the seamless switch between outdoor and indoor mobility modes on devices that auto-sense the availability of a voice or data network. Systems may include mobile and fixed wireless network convergence.

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In Europe, solutions for auto-mobility have been tested based on the DECT[1] standard which allows mobile phones to be brought into the home and connect to the land-line telephone network. This trans-network approach is appealing to a carrier if it owns the customer relationship on both networks but presents a problem when the capability crosses carrier boundaries. Who owns the customer, who collects the revenue and who distributes it are touchy issues that would need to be addressed in this multi-carrier model of mobility, a more likely scenario in the U.S where single carrier situations are unlikely.

A Swedish company and GTE have both experimented with auto-mobility systems. The Swedish company, A Brand New World, used 802.11 to enable indoor mobility on specialized mobile handset attachments for the Compaq iPaq Pocket PC device. The device is called the Gizmo Communicator and is ready for 4G technologies, likely in Japan first, and will take advantage of GSM / GPRS networks and wireless LANs.

Another company that experimented with the idea of auto-mobility was GTE in 1997 and 1998 in the U.S., but it never took off. Panasonic also figured out auto-mobility for corporate and residential use, and, once again, it failed. No post-mortum was ever performed which could have provided the data necessary to understand why it did not. Panasonic's solution used a PCE phone with an 802.11 slot. These companies may have been a bit ahead of their time, which seems likely considering that 802.11 is just now gaining the level of grass roots support neces-

[1] DECT is the Digital Enhanced Cordless Telecommunications standard and more information may be found at www.dectweb.com.

sary to catapult the technology forward at a reasonable rate of growth.

802.11 vs. 3G

The push for mobility has led to a battle over technologies in the marketplace, including 3G technologies and spectra, in which European carriers have invested heavily. In Europe the debt load of these investments has become so large for some carriers that they have spun off companies and sold non-core assets to recover capital. The problem was that the approach taken by European regulatory bodies required a competitive bidding process for the acquisition of spectrum instead of awarding it to companies best positioned to succeed in 3G. It is not likely the same mistake would be made in the U.S. where regulators and carriers have learned from the hard lessons in Europe.

New types of business models such as this raised the question of who controls the flow of money -- the carriers, the handset manufacturers or the service providers.

Parasitic Networks and 802.11 were two models considered by the group for the expansion of networks beyond indoor applications. Parasitic Networks are those in which individuals share broadband connections with nearby neighbors. These networks were discussed as one way to make broadband mobile services available sooner than 3G could hope to achieve. New types of business models such as this raised the question of who controls the flow of money -- the carriers, the handset manufacturers or the service providers.

This question highlights the power struggle between the parties in the carrier value chain. One participant stated, "It is unlikely that the folks who provide the service will control the flow of money." Some participants did not care who provides the service, they just wanted to see the applications. Broadband 2 Wireless of Boston was held up as an example of one company trying the rooftop approach to 802.11 broadband but failing due to the high costs of deployment.

While 3G is likely to be deployed over the long term, interim solutions are finding their way into mCommerce markets. Not all participants were willing to dismiss 802.11 as an alternative to 3G, considering the support that 802.11 currently enjoys in the U.S. market and citing that the technology may surpass Bluetooth in adoption. The fact is that Bluetooth has a different application from 802.11, being relegated to short-span cable replacement as opposed to being a LAN solution. Recent developments in the mobile market indicate that 3G will be launched on a protracted schedule for most carriers, making 2.5G or GPRS the interim solution for higher-speed data transmission for mobile carriers. GPRS would act as the mobile equivalent of 56K modems but with an "always on" connection to circumvent long data-connect times.

The Carrier "Problem"

Although the goal of this Think Tank Session was to focus on mCommerce opportunities, the issues of technology and infrastructure surfaced repeatedly, and discussion of new carrier business models contrasted against the entrenched business models of traditional carriers. The passion around the carrier discussion highlighted strong opinions on both sides of the fence. Some participants blamed carriers for putting the U.S. two years behind Europe in mobile communications, one participant commenting, "You cannot change a dinosaur into a hummingbird." Others, who better understood the reality of the carriers' business challenges, were more accepting of their slow movement on new technologies in the U.S.

But the hummingbirds may emerge yet. An MVNO, such as Virgin Mobile, relies upon the infrastructure of an existing mobile carrier to create a business offering and

focuses on applications rather than networks to enter the mobile market. By using the infrastructure of the carriers, the smaller MVNOs avoid having to make huge investments in infrastructure to compete in the market. Regardless of the metaphor, traditional carriers are big and strong and unyielding to the pressures applied by smaller, more nimble companies that need access to existing carriers' networks in order to succeed.

Are U.S. Carriers Handicapped?

The group heard that traditional mobile carriers are stifling new business models because of their top-down approach to business, and that carriers should separate the technology from the business models in order to accelerate progress in the future mobile market. The general challenges of 3G briefly resurfaced with one participant stating, "Telecoms are handicapped in the free market system because of over investment in 3G licenses." This statement fueled the continuing carrier debate in earnest. In Japan, i-Mode's business model -- where DoCoMo set up the entire infrastructure for application service providers -- allows ASPs to innovate on revenue models. Meanwhile, DoCoMo takes revenue for every mobile transaction, generating $ billions in incremental revenue for DoCoMo. The success of the i-Mode revenue model is causing many carriers to consider a similar approach.

Although one participant contended that the I-Mode revenue model is unique to Japan's culture and cannot be replicated anywhere else, one revenue model that may be more universal is for carriers to act as banks. This is feasible due to their experience in and ability to handle micro-payments and consolidated billing. The advent of MVNOs will introduce another angle for the carriers. Because MVNOs enable the separation of technology and revenue models referred to previously, traditional carriers can enter new markets without affecting the underlying voice-based revenue model. L-Mode, an alternative to i-Mode was recently introduced in Japan. L-Mode, which mimics the concepts of i-Mode but in the home, leverages the land-line with a base station that communicates with the wireless handheld phone in the home. Built on narrow-band dial-up Internet which requires a $500 color handset, the service signed up 12,000 users in its first month.

Basic transportation differences between the U.S.and Europe and Japan and the failure of carriers to focus on youth adopters have been critical. The U.S. market is large geographically, covering vast open spaces across which people travel by car. Americans use mobile phones seventy percent of the time while driving, which severely limits their ability to use their hands and eyes for data manipulation. This condition of usage renders the data applications of devices useless under today's circumstances but plausible when voice-driven applications become viable. In comparison, young mobile users who utilize public transportation regularly where they can manipulate data applications dominate the Japanese market. Also, these young people do not have computers as an alternative to their mobile phones, so mobile applications are a priority and quite usable under those conditions. Europe is similar to Japan with a large public transportation system that makes the mobile phone a powerful tool while one is seated on a train. SMS (short messaging service) is the primary data application for mobile users in Europe and allows mobile phones to act as text messaging devices. Young users in Europe, like Japan, were the key to non-voice service adoption. The natural outcome from this interchange was the recognition that U.S. carriers have done a poor job of targeting the critical young adopter market here, leaving money on the table. It may take the aggressive approach of virtual carriers like Virgin that have succeeded in Europe, with traditional carriers focusing their marketing on the less price sensitive young market, to break into the U.S. data market opportunity.

Partner, Independent, or Virtual?

Because of the inherent regional segmentation of the U.S. carrier market and the plethora of U.S. carriers, partnering becomes a foregone conclusion for new entrants seeking to provide data services applications in the U.S. Both AT&T and DoCoMo have chosen the partnering approach to entering the U.S. market and are preparing to launch a joint venture in Seattle later this year. This alliance appears to be a big step forward for such an entrenched culture as AT&T, but it is important to remember that trials deliver no assurance of a broad deployment of new services. This is due in part to the conservative nature of U.S. traditional carriers which resist taking the lead in new markets. Although DoCoMo is attempting to duplicate its success by entering the U.S. market with AT&T, a single mobile carrier does not access the entire market. With a large number of different carriers to deal with, making a consistent offering in multiple U.S. markets will be difficult and complex.

Independent carriers in the U.S. could find similar success to that enjoyed by carriers in Europe and Japan if they identify the proper application or service most likely to be adopted by a target group. According to one participant, carriers must realize that there is more to the U.S. market than voice services. European carriers figured this out long ago, finding the right service for the way the market works, SMS in Europe's case. Another option for traditional carriers is to embrace the MVNO model and allow carriers to extend their business models into data applications with minimal investment. It appears that foreign operators understood this need for diversification well before U.S. carriers. Meanwhile companies like Virgin Mobile are planning to enter the U.S. market in the near future using the MVNO approach. One participant urged U.S. carriers to move beyond control of their networks and to partner with MVNOs to succeed with new business opportunities.

And finally, as carriers begin to understand the ever-changing profile of the U.S. mobile user and focus their attention on doing a few things well, they may find the right combination of business and revenue models to extend their offerings beyond traditional voice services. While users are in their cars, a certain set of services is viable, most likely driven by voice activation and not requiring a broadband connection. Users who are seated on trains or other public transportation can access a different set of services, possibly supported by Internet data at higher bandwidth. Yet another completely different profile would be required in the wireless home or office. The ability to deliver contextual services to an individual who moves through these different modalities could be a key differentiator for savvy carriers.

The Key Driving Factors

The First Words on Drivers

Returning to the focus of this Think Tank Session, participants from Europe and Asia offered a perspective on what makes European and Asian mobile commerce markets tick. The Asian participant had recently attended a Taiwan conference where the leading drivers for the Asian market were identified as Voice, SMS, and gaming/gambling. The European participant highlighted the SMS market in Europe as being "big for kids," with purchased, custom-ring tones for the message-alert on mobile phones as another important driver of incremental mobile revenue. Thus began the gathering of the participants' collective ideas about what the drivers for mCommerce in the U.S. will be. These are offered in the following list.

Driving Factors

- Youth adoption
  - Security
  - Location-based services
  - Knowing where others are
- Usage based insurance/safety
- Notification – i.e.: SMS
- SMS: to get telcos to interconnect

- Does it have to be direct monetary flow?; businesses build models around this
- Routing infrastructure
- Contextual marketing
  - Get information on products while on the road
- Focus on "needs' of users
- How to make money for the operator?
  - Need the enabling technology/infrastructure in order to make money
- Carriers need to move into the vacuum
- Achieving goals is so high in U.S. (relates to $ & carriers)
- IVNOs and get over "dictator carrier" mentality
- Usability of a phone
  - "Hot keys"
- Cost of devices
- 68 to 73% elsewhere are youth, only
- 15% in U.S.; cellular usage is lower
- Need for payment billing systems and carriers
- Productivity for transactions at stores for users
- Need easy-to-use devices and interfaces
- Cater features to user behavior
- "Connected" project management services
- Mobile collaboration
- "On the spot" information technology
  - Text
  - Audio clips
- The need to sell and market services
- Marketing and sales strategies
- Need for carriers to understand micro-payments
- Move successful eCommerce services such as eBay, etc.,to mCommerce
- The need for "an" application and then extend it
- Appeal to the emotional identity of the user
- Perception problem of telcos
- Adoptions of fragmented applications
- Public perception of security in using mCommerce
- Consolidation of multiple devices to one personal device (home, car, cell, PDA…)
- Make email actionable and integrate lifestyle
- Seamless environment between wired and wireless, especially in the U.S.
- Need a critical mass in the user base
- Innovating with carriers
- The 3G standard in the U.S. market: W-CDMA
- Decreasing ARPU's of mobile carriers
- Connectivity of airports and buildings (e.g. 802.11 availability)
- Improved coverage
- Ubiquitous coverage
- Carrier business interface for innovators to plug in to
- People need to trust in the devices to work every where; no dead spots
- QoS – Quality of Service
- Enabling technology
- Personalized applications based on user behavior and user preference
- Standardized user interface to basic modules; billing, authorization
- Higher bandwidth to the device so that you can achieve audio and video (e.g., receive and replay a soccer goal)
- People have to get use to using mobile devices for transactions

> The ability to deliver contextual services to an individual who moves through these different modalities could be a key differentiator for savvy carriers.

The Top 3 Driving Factors – Further Discussion

After taking a vote among the participants on the roughly 50 factors surfaced during the discussion, the top three were identified as usability, contextual marketing, and personalization.

Usability

The obvious usability issues of screen-form factor, keypad configurations and size were complemented by a discussion of usability focused on applications and consistent user interfaces. Microsoft and how they might be part of the solution were mentioned in reference to their work on PDAs. Would the PocketPC platform become as common in portable devices as Windows on the desktop? Can Palm offer the necessary platform for consistency and easy linkage between applications? Or is Open Source the solution? Session participants could not come to a consensus on usability, except to agree that standards may help in driving more usable services into mobile devices.

One participant suggested that if developers standardized how mobile Web applications are written, ASPs could more easily transcode the applications for many types of mobile devices. One approach like that taken by AvantGo, is to right-size the application for the screen-form factor, making standard Web-page functions fit on the small screen. Another player, Yodelee, believes that personalized wireless portals providing mobile Web services are the answer. Rick Brennan, the CEO of SoftSource, demonstrated his XML-based application during the morning break which replicates a standard Web page on a PDA screen perfectly, with zoom and click functions that deliver surprising results for both hypertext and graphics and make otherwise useless applications usable on the small screen.

Another key element of usability is the human social factors that play into a mobile lifestyle. One participant posed the question "What is the driver for a human to adopt a new technology?" Is it identity, appealing applications or just differentiating product factors? It was suggested that the solution may be as simple as moving familiar desktop eCommerce sites to mobile devices, like Amazon.com. Many popular sites have already done this, but the results have not stimulated the mobile economy in any measurable way.

The process of segmenting the market into broad demographics begins to identify market opportunities, but the marketing of mobile phones to date has largely been a "one size fits all" approach, focusing on handsets and minutes.

Contextual Marketing

The group heard that more must be done to educate the marketers and the market to the specific needs of the many types of users. As one participant passionately put it, "Nothing happens until somebody sells something. Carriers are not good at selling." The process of segmenting the market into broad demographics begins to identify market opportunities, but the marketing of mobile phones to date has largely been a "one size fits all" approach, focusing on handsets and minutes. Once again, Virgin Mobile was held up as an example of a company doing effective marketing to a strong demographic, the youth and young adult markets in Europe. This "smart marketing" has delivered a substantial market share to Virgin of approximately 3.5 percent after barely more than a year in business.

Personalization

The U.S. is behind Europe and Japan in most aspects of mobile-phone technology and applications, including personalization. Personalization in the U.S. is limited to changing the welcome message on the screen or to the stylization of the faceplate of the handset. Custom ring tones are a recent addition to personalized features on some handsets here but have been a source of revenue in Europe and Asia for awhile. Participants were not convinced that these measures are enough to drive substantial incremental revenue for U.S. carriers to bring them ultimate success. Rather, carriers must extend their personalization into the more lucrative applications arena.

The addition of SIM (subscriber identity module) cards to phones operating on GSM networks in Europe has added a layer of portable personalization that allows users to easily switch between handsets. The personal profile is maintained in the SIM card along with custom features preferred by the user. In the U.S., the recent addition of viable CDMA Smartphones, such as the QCP6035 from Kyocera, an integration of phone and PDA, has introduced a more user-friendly and personalized handset. However the pricing of these devices must come down from the lofty $400-$500 before mass adoption is possible.

The addition of location-based services will add another layer of personalization to mobile devices that will enable contextual services delivery. However, the concept of "someone or something" knowing exactly where one is at any given moment is controversial to much of the public who are sensitive to the security and privacy implications of this technology. Although there is considerable activity in R&D for location-based services, full integration of GPS (global positioning satellite) receivers into mobile handsets is just beginning to occur, and a viable service base can only be built upon a critical mass of GPS enabled handsets. Sprint has announced availability of a GPS-enabled handset, the SPH-N300 from Samsung, which will sell for $149.95 and has been released in preparation for Sprint's rollout of its E-911 (emergency 911) mobile location system. This E-911 mobile location system is due to be switched on by most cellular carriers in November, 2001, in line with rolling requirements from the Federal Communications Commission (FCC).

The Obstacles

Whenever the topic of driving factors is addressed at the Silicon Valley World Internet Center, it is impossible for Session participants to ignore the obstacles to success. The following list carries some common points with the previous list of drivers. However some productive, focused discussion resulted from gathering this information. That discussion is covered after the list.

Obstacles

- Spotty coverage
- Component assembly and buttery miniaturization
- Lack of applications
- Pressure for quick payoff from investors
- No unified technology standard
- Consumer adoption of wireless; consumers do not see the needs
- Security, penetration, tampering, privacy, eavesdropping
- QoS, whatever is deemed adequate for whom
- Lack of a carrier business model
- Different cell network standards in one market: TUMA, EDMA
- Balkanized standards and business models, especially in North America
- Security and feeling of security
- Nobody wants to start with a small part of a nationwide market, not the entrepreneurs, not the VC's, not the carriers
- In the U.S. there is a constant comparison with the Internet; people are spoiled by the Internet and expect the same quality
- Lack of a viable business model
- Unresolved payment and billing issues
- Lack of inter-connectivity, billing, access technology, messaging
- Flexible user interface, send or receive in voice or text, interchangeably
- Wireless applications are wireless internet applications; special favorites are not found in wire applications
- Unified VI standards
- Standards, battery life, change in perception of cell phone QoS

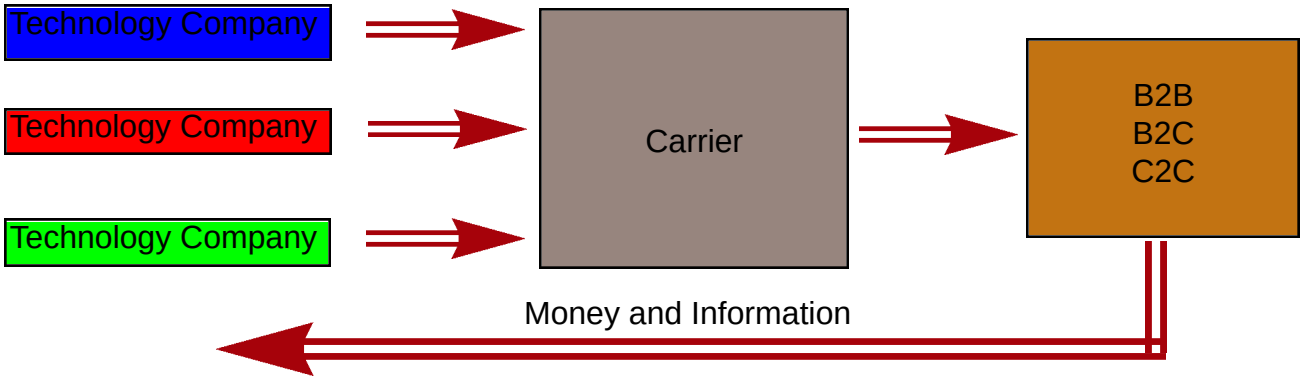
- Lack of enabling technology to connect service providers and customers
- Big initial cost "risk" (DoCoMo) covered
- International roaming business
- Unified broadband, protocol standards
- Dubious business models for both 3G and WLAN infra structure roll-out
- Lack of understanding of the value delivered
- Connectivity, reliability, how can you achieve transaction if the connection is lost?
- Complexity and cost of providing targeted context sensitive applications;too many participants in the value chain; narrow vertical applications
- Consumer diversity, device diversity U/I diversity
- Lack of a business funding model

Billing: A Key Obstacle

Aside from the U.S. carriers, themselves, being a major obstacle to mCommerce, more debate ensued about billing and billing systems than any other challenge. The entire carrier billing infrastructure is built around voice and minutes, making it difficult to transition billing systems to a data- and transaction-based approach. When DoCoMo built the i-Mode billing infrastructure, it was based entirely on a percentage-of-the-service fee structure. This structure uses pre-defined transaction models for companies wishing to offer services through i-Mode, in essence acting as a billing standard to which ASPs can write applications. The legacy of carrier billing systems is a hard one to overcome, and U.S. carriers are not ready to invest in transaction-based billing systems, so what is the answer? Some carriers are working with credit-card companies to offer alternatives to consumers for their long-distance billing, and most are now taking credit/debit card payments by phone or Internet for monthly charges, but this does not solve the core issue of mCommerce support.

New forms of billing systems can be provided by third parties who specialize in the business, or the MVNOs can once again enter the picture and provide the value-added mCommerce services and underlying billing systems required to bill transactions and data services. This raises a valid fear on the part of the carriers -- that they will be relegated to simple infrastructure providers, with no access to the money flow Sorin Damian of The Information Group, Inc. demonstrated this problem with a short white board session, which is shown in Figure 1 below. Carriers provide technology companies with access to users, but the money never touches the carriers' bank accounts. Instead it goes directly to the technology companies providing the services. What this means to carriers is that they may need to partner with billing entities in order to maintain some involvement as the "bank" in control of the money flow, particularly when offering their networks on a wholesale basis to virtual operators. Carriers and technology companies

Figure 1: Carriers Out of the Money Flow



would both benefit from working together on a solution to this problem. As one technology company executive put it, "We are the flea on the tail of the dog and have very little leverage to wag that fat tail."

Prepaid cell phones also eliminate the carrier from the equation. Carriers receive wholesale revenue from the reseller, who then dramatically marks up service rates. Disposable handset providers take this same approach, addressing the needs of a real market segment -- those without credit ratings acceptable to mainstream carriers, as one example. These are popular in Israel for parents of teenagers. A specific application allows only outgoing calls from the child to a parent. The system is built on a calling-party-paid basis, which is not available in the U.S., again because carriers are slow to move on these opportunities for targeted applications.

The Time line for mCommerce

After many hours of open discussion, it was time to break out into smaller groups for an exercise that would shed light on when mCommerce would take off in the U.S. The four groups each had the goal of bringing back a time line to the large group that represents what would happen over the next few years, leading to a consensus on when mCommerce would become reality.

The results were returned in less than an hour, with each group taking five minutes to present their time line and rationale supporting their projections. The first common theme among the presentations was that Instant Messaging seems a logical early step toward a billable and widely adopted application for mCommerce, starting now and into early 2002, with an emphasis on the youth market. In the same time frame, MVNOs appear to be a good model for developing an alternative to traditional carriers. Finally, transaction-based mCommerce will arrive in earnest about 2005, the same time that enhanced spectrum will be widely available, seeming to indicate that broadband and mCommerce are linked in some way.

The following are the graphical representations of each group's efforts, bringing to a close the discussion about what it will take to drive mCommerce adoption over the next few years.

Table 1: Group 1 Time line for mCommerce in the U.S.

2002	2003	2005
New Business Models that are alternatives to Telco; i.e., 802.11	Issue Solutions	Intermediate Applications
Standards Adoption	Security	Value Chains
Prototyping	Global Cooperation	Alerts
	Basic Applications	Transactions
		Telematics

Table 2: Group 2 Time line for mCommerce in the U.S.

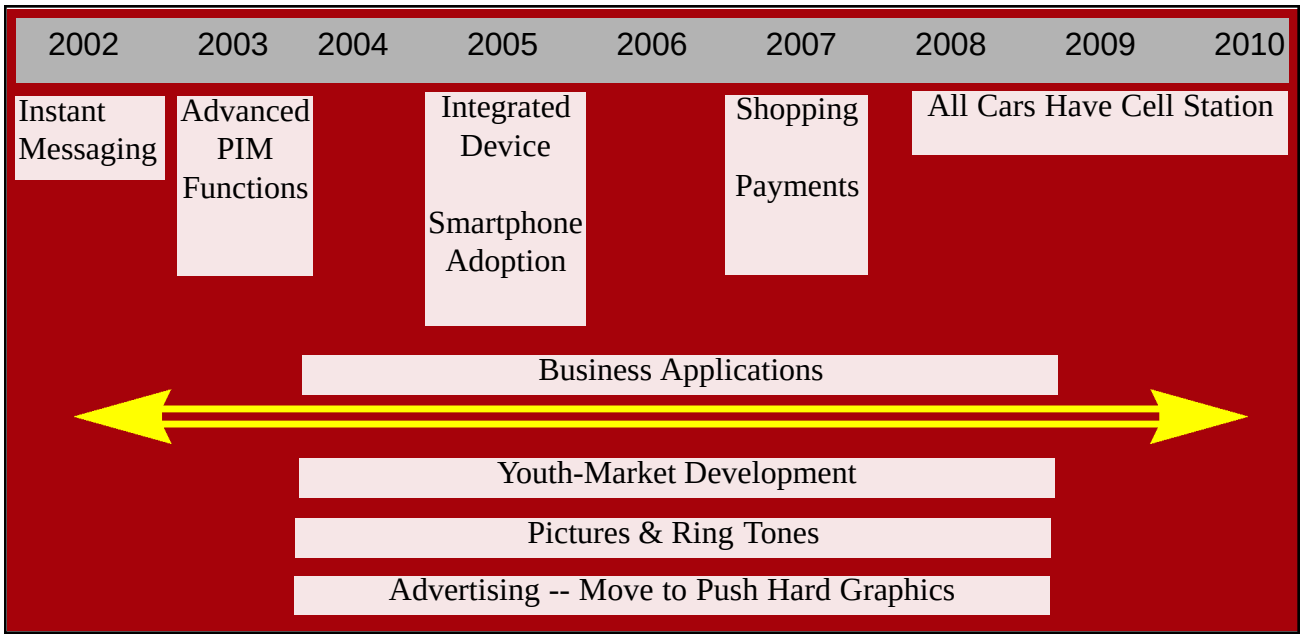


Table 3: Group 3 Time line for mCommerce in the U.S.

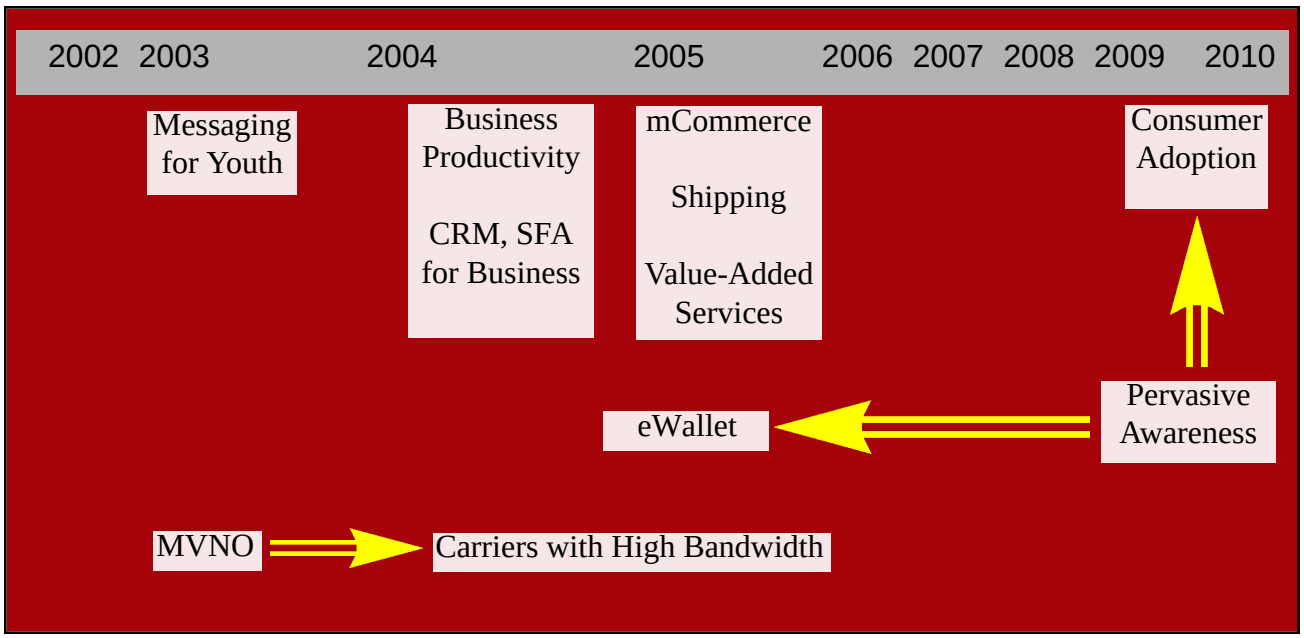
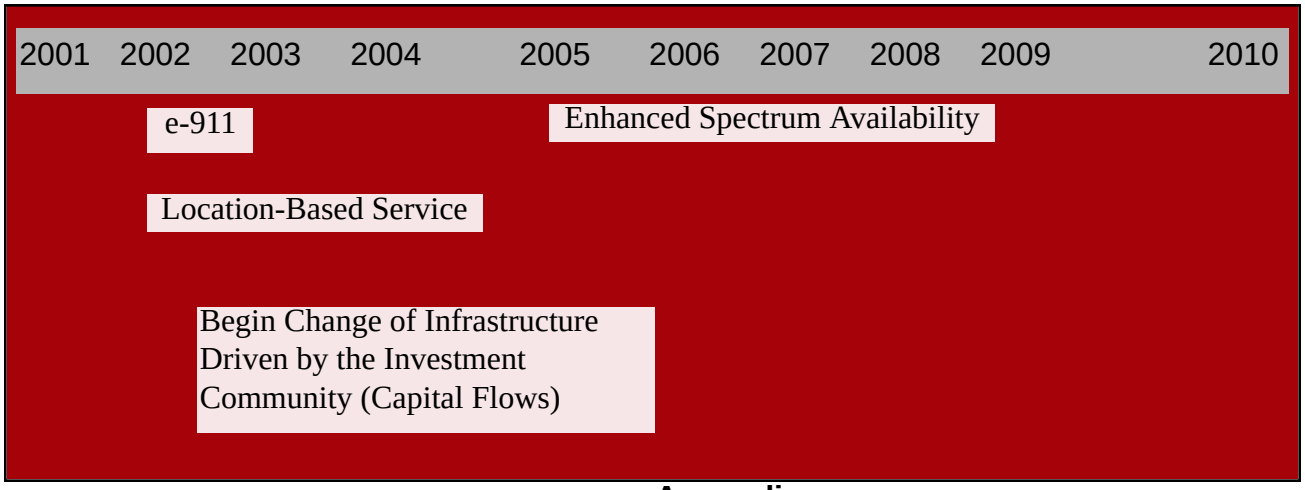


Table 4: Group 4 Time line for mCommerce in the U.S.



Conclusion

The definition of m-Commerce allows for broad interpretation, depending on ones perspective. Carriers believe that m-Commerce includes the simple ability to sell ring tones to users, users look at shopping as a way to define m-Commerce while MVNOs may include any data service in the definition. What appears to be true in almost every case is that m-Commerce is still in nascent development in the overall mobile marketplace. If the preceding time lines are close to reality, it will still be a few years before m-Commerce takes off. In the meantime, the foundations for adoption of mobile data services appear to hinge on two market developments. The first is the adoption of services targeting the youth market in the U.S., principally Instant Messaging, according to the Think Tank Session participants. Second is the development of useful data services for the enterprise, starting with SFA and CRM. Both of these opportunities will require effective target marketing, something that traditional carriers have not proven as a core competency to date. It may take the introduction of MVNOs to generate a real shift in marketing of new services built on new business models in the U.S. market.

Appendix

The day finished with the gathering of ideas for future Session topics, which are included in the Appendix.

Ideas for Future Think Tank Sessions

- Billing/mBilling/Customer Care
- U.S. Operators/ Technology folks
- How will wireless data make money for carriers and others
- Global market
- Standards – 3G
- Bandwidth
- Integration and roaming, auto mobility?
- Real valuable applications in wireless
- Mobile device inter-operability
  - Operating System
  - Billing
  - Network API's
  - Standards
  - Common U.I./concepts/conventions
- Greatest U.S. Market Opportunities
- Creating effective marketing solution for mCommerce / mService
  - Education of the marketplace
  - Education of the users

These proceedings were written by Robert Noakes.