

***IT'S THE (LBS) APPLICATIONS, STUPID!***

*By David H. Williams, CEO, E911-LBS Consulting*

I've had it. I've had enough of projections based on misleading statistics, little empirical data, "chicken-and-egg" assumptions, and "analogous" historical comparisons whose relevance are highly questionable.

What I'm talking about are projections about Wireless Location-Based Services (LBS). A certain research firm put the market for LBS in the "(tens of) millions, not billions of dollars." Another essentially declared Telematics applications as a no-growth area until 2006. And so on. Detailed examination of the research methods of these firms reveals large flaws in assumptions and methods, and in particular, a one-size-fits-all approach to the location services themselves, making no distinction between security services vs. sales force tracking, paintball-type games vs. public safety. To paraphrase a political catchphrase: "It's the applications – Stupid!" This is the philosophy that LBS stakeholders (carriers, businesses, content providers, middleware providers, and 3<sup>rd</sup> Party developers), need to adopt to successfully grow the LBS market, far beyond the meager projections currently being floated, and much more rapidly.

LBS already have what it needs from an infrastructure perspective to be successful:

- 1) Powerful, pleasant-to-use devices enabled for location-based services, with Sprint PCS alone having sold over 3.2 Million GPS-enabled handsets as of November 2002 (source: FCC.gov);
- 2) Stable, accurate, broadly implemented handset-based (e.g. A-GPS) location technologies and (to a somewhat lesser extent) network-based (e.g. U-TDOA, E-OTD) technologies;
- 3) Strategic trend towards client-based mobile applications, and already sufficient and rapidly improving network speeds for data exchange, with 2.5G speeds now broadly available (and frankly little need for 3G speeds);
- 4) A regulatory environment neutral at worst for LBS, and in fact very positive in some areas such as security-related services (at least in the U.S.). Privacy concerns remain however; in fact, Privacy will remain one of the top issues for LBS for quite some time.

**What we don't have are the applications, and the back office support for those applications. Essentially we're all dressed up, with no place to go.**

*Since this topic covers a lot of ground, let's get our definitions straight. LBS involve any Mobile device (Mobile Phone, PDA, Vehicle, or even wrist-watches or dog collars) with the appropriate electronics that use the location of that device (defined in terms of Latitude/Longitude, Street Address, or "Ball-Park" coordinates) to provide Value-Added Services to the Owner or user of said device. Those information services are delivered to the original and/or other mobile device via text messaging, multimedia (maps, etc.), or voice delivery, and to the Web as well. The services (applications) cover potentially any area having to do with everyday movement as a consumer or at work: Navigation, Security, Convenience, Entertainment, Travel Aids, Productivity Aids, Mobile Work Force Management, etc. LBS also include human/machine interactions such as Telematics applications, and an evolving number of machine-to-machine interactions involving location.*

### Key Application Success Factors

When I say we (as an industry) don't have the applications, this is a mild exaggeration. "Find A..." (Friend, Restaurant, etc.) type services have already been launched by AT&T Wireless, Bell Mobility, Orange, and others. While a start, they are unlikely to make a large splash in the marketplace, for a number of reasons. In particular, for LBS applications to be successful from a business standpoint, two dimensions are key: 1) Functionality Packaging, and 2) Niche Product Marketing.

1. **Functionality Packaging** - Since the core functionality of LBS is similar across most LBS applications - that is, find a Person, Place, or Thing relative to the user's current location - the challenge from a business AND application design standpoint is to narrow and specialize that functionality for the particular target market. The focus of a **Family Security** package (focused on knowing about the whereabouts and safety of spouses, children, relatives, and even pets) will be quite different from a **College Student** package (focused on the whereabouts of friends, campus events, course/community events, fraternity/sorority functions, etc). This "trickles down" (rapidly) to the way the menus are arranged, what terminology is used, how the dialog sessions are constructed, what associated information links are included, how the information is presented to the user, and within what type of business model the customer is charged for the service (and most fundamentally, what the user will be willing to pay for the service). Any attempt to make 'one size fits all' will have limited success or fail outright. **It is ESSENTIAL to treat LBS markets individually, EVEN if the functionality as a whole is essentially the same.** That leads us to the second success factor, niche product marketing.
2. **Niche Product Marketing** - Anytime carriers or other large businesses hear the word "niche", the first thought is usually "niche equals small", and the second is "small equals forget it - I've got better things to do." The natural tendency is to forget (or want to avoid the internal political argument) that several niches added together can constitute a very significant market in total, and in the case of LBS, a very large and profitable total market that has a very high ARPU (Average Revenue Per Unit) for carriers, with a corresponding "piece-of-the-pie" benefit to the associated information providers, software developers, and business enterprises involved.

### LBS Business Case Development

"What is your Business Case justification?" - This phrase strikes fear into the hearts of product marketing and application development organizations everywhere; it is the Achilles Heal of Wireless Investment in general - not just LBS. In this economic environment, business cases to justify significant budget allocations must not only be feasible, but effectively bullet-proof from every angle.

For wireless carriers, “bullet-proof” business cases must address at a minimum the application’s potential to:

- Improve ARPU across some portion of the existing customer base,
- Attract new subscribers, as well as bringing existing customers “over to the data side”,
- Penetrate new markets (e.g. verticals, geographies, other market demographics), and/or
- Reduce churn (always tough to prove, but it is a huge issue for carriers)

For business enterprises, business cases should include the application’s potential to:

- Promote purchase or use of company’s core products,
- Provide new sources of revenue (unlikely to be large relative to other benefit areas),
- Reduce operational costs (e.g. less calls to the call center, less reps per account), and/or
- Achieve customer satisfaction improvements (often measured in detailed dimensions in annual customer satisfaction surveys)

These tasks become much more straightforward when approaching LBS from an individual application/niche market perspective (NOT a one-size-fits-all market approach), with functionality “packaging” and marketing to match.

There usually is decent and recent research available at the individual application level or target demographic that can form the core of a LBS business case. Examples include:

- One-third of ALL wireless subscribers state that their primary or ONLY reason for having wireless service is for (personal) security - Target Applications: Family Security, Enhanced Personal Security; Target markets: Parents, Seniors, Singles (data source: NENA.org 2002). This information can be supplemented by data regarding baby-monitor sales (expectant parent package), single-parent homes (latch-key /school monitoring package), parent(s) with teenagers (teen tracking package), etc.
- The market for games (non-gambling) played on mobile handsets is projected to grow from \$255 Million Euros in 2002 to over \$3 Billion Euros during 2005 – In Western Europe alone. Target Applications: Location-Based Mobile Gaming; Target market: Teenagers (data source: Analysys 2002). This information can be supplemented by additional information such as the uptake rate of ring-tone downloads (a predominately teenager market) and business model information about ring-tones as well as early results from pioneers in the LBS gaming market such as ItsAlive.

Sometimes new concepts (such as Presence) have little secondary research to help build a business case; in these circumstances it is often beneficial to conduct focus groups and other types of primary research. However, this type of data is most useful in the design of the application and selection of the business model, not for building the overall business case. In addition to primary and secondary market, there are a few other considerations that can be incorporated into a LBS business case argument:

- Substitution vs. Additive Expenditures (e.g. will the application somehow cannibalize existing revenue, or alternatively, take revenue from other communications providers, such as Wireline)
- Productivity Claims (difficult to justify objectively, but good subjective anecdotes are helpful)
- Capital Replacements (e.g. customers can avoid purchase of expensive laptops or specialized handheld devices for sales and field applications)
- Public Relations (will the application help build the company’s image/brand in the marketplace)
- Common Sense (don’t make ridiculous claims, but don’t overlook any benefit)

With respect to LBS public relations, and key infrastructure requirements, none is greater than the need to ensure personal and business enterprise security, privacy AND ethics. In this day and age, every demographic will insist on absolute integrity in the design of applications and security in their delivery. An example would be to include extremely strong “anti-stalking” capabilities in “Find-a-person”-type applications and supporting infrastructure, and to lobby Washington and State legislatures for very harsh punishments of such offenders, who are already appearing in the news and with increasing frequency.

### *What ARE These Applications?*

LBS applications cover nearly every aspect related to human mobility: Navigation, Health/Safety/Security/Emergency, Convenience, Entertainment, Travel Aids, Productivity Aids, Mobile Work Force Management, etc, and many aspects related to human/machine interaction (e.g. Telematics) and even machine to machine (e.g. automatic emergency calling for car breakdowns, medical implant malfunctions, mobile wallet). **And as you might expect, LBS applications cover nearly every attractive wireless demographic market**, including: parents, teenagers, singles, college students, online communities, business executives, and entrepreneurs. This also includes businesses that significantly depend on mobile voice and/or data communications to operate their business, such as companies with significant field employee organizations, and businesses dependent on knowing the location of their assets at any moment, such as trucking and even railroads.

These individual markets have repeatedly demonstrated the willingness to pay premium prices for communications services, WHEN they feel those services are focused on satisfying their needs and desires.

A great deal of attention has been placed on what kinds of business models (if any) can succeed in the LBS world, and the next generation wireless world in general. The assumption seems to be that some sort of new, exotic business model will be necessary to make new wireless products (including LBS) profitable. This is nonsense at the most basic level - the end-user perspective – IF the product meets their specific needs, they WILL pay, be it on a monthly, usage, per use, or other basis, even if new methods such as location-based billing are required. If sufficient value is provided, they will pay accordingly.

The business model discussion becomes more complex as more players appear between the original application provider and the end-user. The list of potential players continues to expand: besides carriers, content providers, 3<sup>rd</sup> Party application developers, and distributors, the list is growing to include businesses seeking brand placement; and, in the case of Wi-Fi, players such as national hotspot network providers, real estate owners and tenants, and even municipal governments. **The successful business model in these circumstances will, again, depend upon the SPECIFIC target market and applications involved, not a one-size-fits-all approach.**

Examples of these applications (again, not restricted to a mobile phone being the device), with target market(s) in parentheses, include:

<b>Consumer</b>	<b>Business</b>
<b>Public Safety* (All)</b> <ul style="list-style-type: none"> <li>• E911</li> <li>• “Reverse” 911</li> <li>• Medical Alerts</li> <li>• Amber Alerts</li> </ul>	<b>Business Safety* (All)</b> <ul style="list-style-type: none"> <li>• Employee Safety/ Safe-Zone Monitoring</li> <li>• Business Asset “Geo-Fences”</li> <li>• Executive “Ethics” Monitoring</li> </ul>
<b>Family Security (Parents)</b> <ul style="list-style-type: none"> <li>• Family Locator</li> <li>• After-School Monitor</li> <li>• Teen Tracker; Truancy Monitor</li> <li>• Child Finder</li> <li>• Pet Tracking</li> <li>• Special Zone Tracking (Wi-Fi/Location) <ul style="list-style-type: none"> <li>▪ Shopping Malls</li> <li>▪ Public Events (Concerts, Sporting Events)</li> <li>▪ Zoos</li> </ul> </li> </ul>	<b>Business Functions/Processes (All)</b> <ul style="list-style-type: none"> <li>• Field Sales Force Management</li> <li>• Field Technician Dispatch; Map Forwarding, Routing</li> <li>• Fleet Management; Pickup/Delivery Routing; Vehicle Management</li> <li>• Office <u>Presence</u> (Location Plus State, enabling new forms of Business Instant Messaging)</li> <li>• Facility Finder; Office Finder (Wi-Fi/Location)</li> </ul>
<b>Mobile Games (Teenagers)</b> <ul style="list-style-type: none"> <li>• Paintball or “Hide-And-Seek” or “Doom/James Bond”-type games</li> <li>• Casino Market (“Musical Chairs” equivalent)</li> <li>• Host of Others</li> </ul> <b>Social Enablers (Singles)</b> <ul style="list-style-type: none"> <li>• Date Finder, Mobile Personals, Matchmaking Services</li> <li>• Buddy Finder</li> <li>• City Guide</li> <li>• Mobile Concierge</li> <li>• Mobile Wallet</li> </ul>	<b>Vertical Industries</b> <ul style="list-style-type: none"> <li>• Medical (Wi-Fi/Location)</li> <li>• Utilities (Electric/Gas – Tech support e.g. Real-Time Maps; Railroads - Rail Car Locations; Airports – Ground Asset Management, Parking Lot Management)</li> <li>• Shopping Malls (Wi-Fi/Location)</li> <li>• Trucking (Vehicle Tracking, Car Tracking – Shipping)</li> <li>• Insurance (Adjustor Routing)</li> <li>• Construction (Contractor Management)</li> <li>• Legal (Ambulance Chasing)</li> <li>• Security Services (Guard Locator)</li> <li>• Vending (Consumer Products)</li> </ul>
<b>“Viral” Communities (Many)</b> <ul style="list-style-type: none"> <li>• Social General</li> <li>• Community Specific</li> <li>• One-Time “Specials” (Sports Events, Concerts, etc.)</li> </ul>	<b>Education (College Admin, Students)</b> <ul style="list-style-type: none"> <li>• Location-Sensitive Wi-Fi Partitioning</li> <li>• Campus Navigation</li> <li>• Community Connectivity (Location)</li> </ul>
<b>Telemetry (Mobile Professionals)</b> <ul style="list-style-type: none"> <li>• Navigation Assistance</li> <li>• “Lo-Jack” Equivalents</li> <li>• Near-Miss Alerts</li> </ul>	<b>Telemetry (Businesses)</b> <ul style="list-style-type: none"> <li>• Asset Security/Tracking</li> <li>• Geo-Fences</li> </ul>
<b>Driving Directions, Navigation Aids, Weather Alerts, Road Assist (e.g. find gas)</b>	<b>Navigational Aids, Travel Assistance, Weather Alerts</b>
<b>Yellow Pages (Many Permutations, such as ATM finder, Restaurant Finder, All the various shopping scenarios, etc.)</b>	<b>(Business) Yellow Pages (Many Permutations possible, including specialized YP per verticals above)</b>

*\* NOTE: IT IS NOT NECESSARY FOR THE E911 PSAP INFRASTRUCTURE IN THE U.S. TO BE IN PLACE IN ORDER TO OFFER EVEN SECURITY-RELATED LBS APPLICATIONS – IT MAY EVEN PROVIDE NEAR-TERM OPPORTUNITIES*

*A specific note on Wi-Fi - despite media portrayals to the contrary, it is a communications platform, not an application itself. It provides high-speed wireless access to the Internet within a limited distance by devices (laptops, mobile phones, PDAs) appropriately equipped, and enables access to any type of application that can be operated on that device. Location-related functionality can play a very important role in many Wi-Fi deployments, depending on the market. Such examples include partitioning campuses to discourage web-surfing in certain areas (e.g. classrooms, lecture halls, campus hospitals, etc.), or providing specialized navigation and yellow page services within the Wi-Fi footprint, say for shopping malls or office campuses.*

### Back Office Issues – Particularly Privacy

Typically the phrase “back office” refers to processes such as order processing, billing, and customer care. While these indeed will become significant issues as LBS volumes increase, they are not the most immediate issues.

The biggest obstacle remaining to LBS besides the services themselves is the lack of privacy-protection infrastructure: a combination of intelligent agents, data security software, and legal constructs that will “guarantee” to the customer that his/her/the enterprise’s privacy will be protected. These designs exist, the software available, and the legal research has been conducted, but in the absence of high-demand applications the privacy infrastructure has not been implemented in any serious fashion, or only partially. Once one or more of the applications discussed above takes off, the need for such privacy infrastructure will escalate dramatically, and those businesses ahead of the issue will have a jump on the market as a whole.

### Summary

The time is ripe for location-based services: the infrastructure is here, the markets primed, the remaining obstacles identified and workable. The key is to package LBS functionality specifically for their individual target market, construct the compelling individual business case, and tightly focus the “niche” marketing efforts. With the appropriate privacy/security back office infrastructure to support these tailored and well-marketed applications, LBS can finally become the breakout revenue generator that we have talked about for years. As an industry let us accelerate our efforts on the detailed development and implementation of the individual LBS applications to take advantage of their potential sooner rather than later, and close the book on the industry skeptics.

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