An Analysis of Mobile Location Based Services & Advertising

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By

Jessica E. Sharp

Thesis Advisor

Michael Hanley
Associate Professor
Department of Journalism

Ball State University
Muncie, Indiana

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Abstract

Mobile Location Based Services (LBS) are one of the most recent mobile advances for businesses and advertisers. LBS are services that allow mobile users to find geographically based information by using Global Positioning System capabilities (GPS) within their device. The problems with LBS are that many mobile users do not understand how they work, the privacy implications, or that businesses are taking advantage of consumer location information. LBS are growing at a rapid rate, almost parallel to the growth of smartphones, and are causing privacy concerns because legislation has been unable to keep up with the pace of technology adoption. This paper is an analysis of LBS including how LBS work, their benefits, and how Congress is attempting to protect user's information through new regulations. The findings in this paper include where and when LBS began and popular user applications such as Foursquare, Yelp, and Facebook. It also discusses the best mobile platforms for advertisers: xAd, Apple iAd, and LeadBolt. LBS provide useful benefits to users and businesses as long as companies do not abuse privacy privileges. Companies using LBS hope to be able to practice self-regulation, but Congress is involved and working to pass various regulatory laws. The paper concludes with a discussion of how user concerns are being mitigated and where the future of LBS is headed. This is just the beginning of the discussions of LBS as they continue to play a larger role in mobile marketing technology.

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LBS have been around since 2000, but were not used on a large scale until the introduction of the iPhone 3G and the LBS-enabled Android operating system (Rouse, 2009). LBS then became available to millions of consumers who owned smartphones and advertisers began to build new methods of reaching those consumers. It is incredibly important for advertisers and consumers to understand how the technology works because consumers are using LBS without realizing it and this can put advertisers at risk.

What Are LBS and How Do They Work?

According to the Mobile Marketing Association, LBS are “a range of services that are provided to mobile subscribers based on the geographical location of their handsets within their cellular network. Handsets have to be equipped with a position-location technology such as GPS to enable the geographical-trigger of service(s) being provided. LBS include driving directions, information about certain resources or destinations within current vicinity, such as restaurants, ATMs, shopping, movie theaters, etc. LBS may also be used to track the movements and locations of people…” (Mobile Marketing Association, 2012). Location based services work by using a Global Positioning System (GPS) chip in a mobile device that interprets signals from satellites and determines the device’s current position. The technology is sped up in a process known as cell tower triangulation. This is a way to “jump start” the process of finding a GPS location by finding the position relative to surrounding cell towers first (Rose, 2012). Timing is critical for both the advertiser and the consumer.
LBS did not catch on quickly and have only recently come to play a large part in mobile technology. In 1996, the Enhanced 911 Mandate law was passed by Congress. This mandate allowed mobile network operators to locate the position of an emergency caller. In an attempt to push mobile technology advances along, the operators tried introducing commercial services. The services they introduced were mostly “finder services” used to access points of interest such as gas stations. Users were not interested and the technology died for the time being. Then in 2005, several factors came together, which set up the perfect environment for LBS. These factors included mobile devices with GPS capabilities, Web 2.0, and 3G services (Bellavista, Kupper, & Helal, 2008).

Figure 1. The evolution of location-based services (Bellavista, Kupper, & Helal, 2008).

LBS allow advertisers to gain information on consumers and then use that information to build profiles and target consumers more effectively. LBS advertising can be question-based (known as pull advertising), such as trying to find the nearest gas station. Question-based services are started by the consumer when they search for specific information. LBS advertising can also be pushed-based (push-notifications) to deliver marketing incentives, information, and
advertisements to users. Push-based advertising sends content to a user without them specifically requesting it. This form is often seen when users download apps and opt in to allow push-notifications.

Often, businesses using LBS will employ something called a geo-fence to find the consumer’s present location, gain information, and offer relevant ads for products and services that are in close proximity to the consumer. A geo-fence is a predefined area on a map (Rose, 2012); the business using the location based advertising is generally in the middle of that area. The geo-fence can be drawn close to the business or far away depending on the circumstances, but once a person enters a geo-fence they can be sent an ad directing them to the business.

LBS are primarily opt-in services used in advertising and mobile applications to provide the advertisers and consumers with specific information or benefits. According to the CANSPAM Act of 2005 (Federal Trade Commission, 2005), it is illegal in the United States to send a message to a mobile user who has not specifically requested or opted in, to receive the message. The following is an example of what most people believe compared to what actually happens: “Perception: Jane receives a push notification for 10 percent off a drink order from Starbucks. Reality: Jane needs to either (a) have opted in to receive push notifications from Starbucks or a Starbucks’ partner before walking by the store, or (b) be consuming mobile content that has the ability to target ads based on location in real time” (AdExchanger, 2012).

**LBS Continue to grow**

Over the past five years, more advertisers and users have jumped onto the LBS bandwagon because of the benefits. For advertisers, LBS are becoming a major source of revenue. Several studies have been done by various companies to prove this fact.
• LBS are expected to bring in $10 billion by 2016, according to the research firm, Strategy Analytics (Kim, 2011).

• By 2017, advertisers will be spending $7.4 billion on mobile messaging ads (Hing, 2012).

• The sale of geo-targeted advertising is expected to generate more than $100 billion by 2020, according to the McKinsey Global Institute (Belicove, 2012).

• The Mobile Marketing Association states that mobile ads should count for seven percent of advertising budgets; that number is around one percent right now (Heine, 2012).

Location based ads can demand a first-rate price because of the ability to target more specifically and be more relevant to users. Advertisers would not be having such luck if smartphone owners were not using the services in such high numbers. According to one report, there were 63 million users of LBS in 2009, and that number was expected to reach 468 million by 2012 (Blur Marketing, 2011). Pew Research conducted a survey in February 2012 that found about 75 percent of smartphone owners have used LBS. That number grew from 55 percent in May 2011 (Pew Internet, 2012).

Growth has been slower in areas where mobile users share their location through social media. However, smartphone owners are using the services to gain access to location relevant information while they are out. According to the Association for National Advertisers, 62 percent of marketers used some form of mobile marketing for their brands in 2010 and an additional 26 percent reported their intention to do so in 2011 (Association of National Advertisers, 2010). Advertisers and businesses must be prepared for continuous change and will have to be transparent, but the benefits have proven to outweigh the disadvantages as long companies stay ahead of the legislation curve.
Popular Applications Using LBS

Mobile users whether they realize it or not, are most familiar with LBS because of popular mobile applications. There are three influential and groundbreaking mobile applications that exemplify the patterns that LBS are forming. Each of these applications is unique in how developers created them, how users interact with them, and how advertisers make use of them. They are great examples to explore further how LBS are impacting our lives.

Foursquare

Foursquare is one of the most well-known social, LBS check-in apps as well as the first to use the check-in feature. Foursquare was created in 2009 and by early 2011 the social site had more than six million users (Kintigh, 2011). At the end of 2011, the site was up to 15 million users (Proffitt, 2012). Foursquare users are able to tell friends where they are, either to meet up or just let them know if they should check the place out, too. Users can also compete with others through the gaming features of Foursquare. Users compete to collect badges or potentially become “Mayor,” which is the highest title. Both uses of the application are based on rewards and incentives, either social rewards (meeting up with friends) or promotional awards such as coupons. Foursquare also allows users to leave “tips,” which are essentially recommendations as to whether others should visit the business or not. Users rely heavily on the opinions of their peers and appreciate a service that allows comments and reviews.
Businesses offer discounts to regular customers as well as potential customers to make sure they return and tell their friends about it. The business might also run long-term promotions in the form of competitions where a user might be rewarded for a certain number of check-ins. Because of the benefits, businesses such as restaurants, retail stores, and attractions should have a Foursquare account. It allows them to target a smaller and more relevant audience. Businesses can see the information that users are sharing and target them based on the types of places they frequent and their attitudes toward certain ideas. Foursquare also benefits businesses because it allows users to build lists of the places they go most often. Lists makes life easier for the user, and the business can target messages and promotions more effectively.

Figure 2. The Influence of Foursquare (Karthikeyan, 2011).
Yelp

Yelp was founded in 2004 (Yelp, 2012) as a way to help people find local beauty, health, auto services, etc. However, the site, which has a desktop version as well as a mobile application, became much more than that. The desktop version is mainly a search platform and the mobile application is based on LBS (Proffitt, 2012).

Yelp is now a place where users can find and review local businesses; it is especially beneficial to people in a new city. It is also a place for “Yelpers” to talk to each other and share their thoughts. Yelp has about 33 million local reviews and its 2012 third quarter results showed 84 million unique visitors per month (Yelp, 2012). In a recent attempt to compete with Foursquare, Yelp introduced check-ins, based on the same idea of businesses using Foursquare to offer rewards to their customers. Also, in the same fashion as Foursquare, Yelp incorporated gaming so that users might become a Lord, King, or Queen of a business, neighborhood, or even a city (Proffitt, 2012).

Whether or not Yelp can compete with Foursquare is unknown, but Yelp has its own unique identity that was a huge surprise when users first discovered it. The application debuted an augmented reality feature as part of their mobile iPhone app in 2009, something that was not expected to happen until the next iPhone release. The feature, called Monacle, was originally activated by shaking the iPhone three times, now there is a tab in the top right hand corner of the app to activate the feature. The app uses the phone's GPS and compass to display markers for restaurants, bars, and other nearby businesses overlaying the actual camera
The user can also turn in different directions to find out where the business is or if there are other options nearby.

**Facebook Places**

Facebook Places was originally launched in August of 2010 (Proffitt, 2012) as a way to check-in using Facebook. It was thought to be a direct statement of competition with Foursquare. According to sources, Facebook was not trying to compete with Foursquare (Schneider, 2011) because they offered no benefits for checking into a place. It was likely only designed as a way to collect information and track users in order to target them better. In August 2011, the original idea of Facebook Places was pushed aside because without a reward people did not understand why they should check-in. Privacy issues began surface because users were apprehensive about the lack of reward or incentive.

However, the tool is not completely gone. While users no longer check in to Facebook, they can add a location to their status and still tag friends. After the fallout of the original Facebook Places, the company hired the majority of Gowalla’s (an LBS site that no longer exists) developers and engineers (Proffitt, 2012), and then began rolling out Timeline. Timeline takes LBS a step further and allows users to input location information on statuses, photos, and events. These sorts of LBS are interwoven into an entire site and the user’s history.

This information suggests that Foursquare is the leader of check-in applications. Other companies have tried to duplicate in some manner what Foursquare did, but ultimately had to find their own niche. For Yelp, it was the idea of tying LBS into augmented reality and for Facebook it was creating an entire profile based on dates, times, and locations. Each of these applications is extremely important because they have advanced the technology and pushed the envelope of how users interact with LBS.
LBS Platforms for Advertisers

The user-based LBS applications are great for advertisers, but they require a company to design and place mobile ads. Much like the exploration of the applications, the top LBS platforms and what they offer to advertisers are discussed here. The advertising side of LBS is just as important to the mobile industry in shaping the future and user applications.

xAD

xAD is a company that connects businesses and mobile consumers. It is the largest mobile local ad network in the United States. It manages billions of location-specific advertising requests per month and works with more than one million local and national advertisers. xAd reaches more than 85 million unique users a month (xAD, 2012) and that number continues to grow. It is the only mobile ad network to offer targeted search and display advertising (xAD, 2012). The company is able to target consumers based on several factors, including precise timing, behaviors relative to their mobile lifestyles, and the ability to pinpoint location.
xAd provides mobile app developers with an application programming interface (API), which lets them build geographically targeted advertising into their software. As the consumer gets closer to the purchase location, the developer and xAd can collect more information (Lawson, 2012). xAd is well known for its SmartLocation technology, which uses the most accurate location signals combined with user search behavior and then develops its targeting technique known as SmartFencing. The company also takes into account the various factors affecting user engagement such as time of day, weather, and location. xAd is successful because of its ability to stay on top of the latest trends and gather research alongside companies like ComScore.

Apple iAd

Apple's iAd for brands is only available on Apple products like the iPhone, iPad and iPod Touch. While it may seem limiting being available only on Apple devices, it is actually very beneficial because it specifically targets Apple users. Apple users are already an audience with a unique set of characteristics. According to Apple, “the Apple audience is the world’s most engaged, influential and loyal consumers” (Apple, 2012). This audience has installed more than 15 billion applications and engages with iAds for an average of 60 seconds per visit (Apple, 2012). Each ad features the iAd logo, which is meant to let consumers know the ad experience will be different than any other ad they might see. The iAd platform is great for brands because everything is already built into Apple’s iOS operating system software and the ads are displayed within an app so users do not have to leave the Apple system.

With the introduction of iOS 6, Apple added a feature called Limit Ad Tracking (Dilger, 2012) to their settings. If users decide to limit ad tracking, advertising networks using the Advertising Identifier, which is a software option that allows users to have more control over the
advertiser’s ability to track them, will not be able to gather the information required to serve users targeted ads. For now, this only works for iAds, but could be required for all mobile ad networks in the future.

**LeadBolt**

LeadBolt is a new ad network and was recently awarded first place in the Anthill Smart 100 Readers Choice Index of top innovative products. It is a leading mobile ad network and ranks as one of the top 25 advertising networks (LeadBolt, 2012). It offers services to advertisers and developers. LeadBolt emphasizes how easy it is to use their service; a campaign can be set up and launched in the same day. Advertisers can take advantage of built-in optimization algorithms by listing their target demographics and letting LeadBolt do the rest. LeadBolt has offices in various locations around the world, which helps in positioning it as a global, mobile ad network.

LeadBolt is also pioneering some new mobile ad formats such as notifications that appear in the message bar, app icons for Android, which is an app that when opened lists featured apps, offers, and app walls. Thus far the new formats have been very successful and have increased click-through rates for advertisers and have delivered a much higher effective cost per thousand (eCPM) for developers (Mobyaffiliates, 2012). eCPMs are only used as a reference to compare one advertising plan to another. LeadBolt is continuously developing new formats, improving upon mobile banner ads, and working to become an industry leader.

These mobile marketing services have defined how advertisers and businesses use LBS. They were chosen because of their unique approaches and ability to continuously improve services for the advertiser as well as the user. xAd is the largest mobile local ad network, iAd is
branded for a specific audience to increase trust, and LeadBolt is the up and coming network blazing new trails for different forms of LBS advertising.

Figure 4. LBS platforms for advertisers.

Benefits LBS Provide to Advertisers

In addition to in-depth consumer insight, there are many other location benefits for advertisers including word of mouth, reviews to help businesses’ reputations, and support for other marketing functions. These benefits apply to advertising agencies working for a client as well as small business owners working on their own.

Advertisers use LBS to build profiles about their consumers or potential consumers. The information they can obtain often tells them where a person spends their time and what time of day they do certain activities. Profiles can determine the demographics of an audience as well as information regarding likes and dislikes based on behavior. “Advertisers can use mobile consumer analytics to uncover both lifestyle-relevant and commerce-relevant characteristics of existing segmentations, helping advertisers engage in more effective conversations with existing
consumers” (Troung, Bernstein, Hopfer, & R. F. Fullford-Jones, 2010). This information also helps when planning media and offers advertisers the advantage of timely incentives. For example, if a woman goes to yoga the same time every week, an advertiser might be able to offer a discount to the smoothie bar next door during that time frame.

People will generally tell their friends and family when they have either had a great experience or an awful experience with a business. Word of mouth (WOM) marketing is free and one of the most efficient ways to market a business. As long as comments are positive, a business can draw great benefits from this form of advertising. WOM integrates into LBS almost seamlessly because applications consumers are using are based primarily on conversations and reviews. “An eMarketer study in March 2011 found that the primary factor that influences U.S. consumers to try a local business is a recommendation from a friend (Ruiz, 2012).” A few people with a great experience are all that are needed to jump start positive WOM.

Like with WOM, some consumers will write reviews and comments about a business for others to read. Reviews are a major benefit to advertisers, especially if they are positive, but also if the business responds appropriately. Reviews allow a business the opportunity to adapt to what consumers are saying. It is almost as if research is being done for a business when a consumer reviews a product or business. The numbers of people who actually post reviews are limited to those very involved in social media and who have strong feelings, but advertisers can always ask for feedback as well.

An LBS strategy should never be used alone. Businesses must tie it into their presence on other social networking sites, advertising campaigns, and use the strategy to support local events and promotions that involve the business. Marketing strategies work best when various mediums are cohesive. If a business decides to join Foursquare it should make use of the opportunity to
integrate those efforts with other mediums it is using. LBS are an inexpensive addition to any campaign and can produce a return on investment (ROI) that is more than enough to make up for what it paid to implement the strategy.

One example of a great use of LBS in advertising is the Foursquare campaign that McDonald’s ran in 2010, which coincided with an annual Foursquare day event. Rick Wion, the head of social media for McDonalds said, “McDonald’s was able to increase foot traffic [check-ins] to stores by 33 percent in one day” (Grove, 2010). The total cost for that campaign was $1,000. McDonald’s was able to entice customers with 100 randomly awarded $5 and $10 gift cards for checking in. Fortunately, the media also picked up on the campaign and wrote more than 50 articles on the special deal.

Advertisers love LBS because they make targeting the right audience much easier and ROI is higher when they are not wasting ad dollars. Many negative things have been in the news lately about LBS, but there is definitely a positive road ahead for mobile advertisers.

- “All indications show that consumers are willing to engage with new forms of mobile advertising with 37 percent growth forecasted, location based advertising being one of them…” (Kats, 2012).

- Nearly three-quarters of smartphone owners use their mobile devices to access location based information (Murphy, 2012).

- The Pew Internet and American Life Project found that 74 percent of smartphone owners use location based services to find information about what is around them and 1 in 5 are checking into local businesses (Murphy, 2012).
Benefits of LBS to Users

There are some privacy concerns about LBS, but they have not stopped the growth. The adoption rate may be greater if there were less privacy concerns, but like any new social advancement, it takes time. The reason LBS are still growing is due in part to the benefits provided to users. LBS provide users with instant gratification through deals and promotions, peer opinions and reviews, and a competitive gaming atmosphere. Society is becoming more focused on instant gratification and having access to information at the exact time they need it; this makes LBS hard to ignore and even harder to not use. According to a Pew Research study, “28 percent of cell owners use phones to get directions or recommendations based on their current location” (Pew Internet, 2011).

Consumers are constantly looking for a deal and that is often what businesses provide with LBS. The deals being offered can be tailored to individuals, so it is more likely that the person receiving the promotion will take advantage of it. More information is being delivered to users rather than users seeking it out; this is a benefit of LBS for the user. Companies are also offering rewards programs tied into check-in services such as Foursquare (Strout, 2011). Not only do users benefit from Foursquare, but sometimes the more points they acquire from a business, the better the deal.

Consumers trust the opinions and comments of their peers more than if it comes from a business. Services such as Yelp and Foursquare use comments as a way for people to decide if they should try a new restaurant, hair salon or local hangout. Today, when people move to a new city or just want to explore the place they already live, they have resources at their fingertips to guide them to the best place in town. Often, people will also inspire their friends to visit a
business they have discovered. It becomes a tool to have fun, meet friends, and even make new friends.

Gamification, which is the application of game techniques and style into a non-gaming platform (Gamification Wiki, 2012), is also a benefit of LBS. Foursquare is successful due in part to its rewards for checking in, even if the rewards are not linked to a promotion. For some people, competition is so much fun that they will fight to gain and keep mayorship just for the enjoyment of the title. “For companies and brands the benefit of gamification is that it engages people in the kind of reward-seeking behavior that can lead to increased brand loyalty and increased profits” (Thorhauge, 2012).

Privacy Concerns

“The concept of privacy has been defined in terms of control over the disclosure of personal information in order to ensure an effective right for privacy” (Cleff, 2007). There are numerous privacy concerns over LBS. It is a hot topic because most users do not understand what data is being collected and what advertisers and business are doing with it. Consumers hear news stories about a company who took advantage of mobile data and they assume all LBS are not secure. Likewise, they may be influenced by peers who distrust LBS.

“Sharing location information today is viewed with suspicion just as sharing credit card numbers on the Web was 15 years ago” (Lawson, 2012). The fact is, users are slow to trust something they do not fully understand or believe is safe. The data, while being stored in databases to help advertisers target relevant messages to consumers, can also be a detailed record of a mobile user’s past preferences, current activities, and future plans. Mobile privacy concerns
users more because they are rarely separated from their devices. Proving that point, “Mobile phones show the highest perception of invasion and intrusion of privacy” (Cleff, 2007).

The Pew Internet & American Life Center conducted a survey in 2012 evaluating mobile privacy concerns and discovered that privacy factors do influence app users. Fifty-seven percent of app users either remove apps or decide not to install them based on their perception of privacy, 50 percent have erased the browsing history on their device and 30 percent have turned off location tracking (Davis, 2012). Marc Rotenberg, executive director of the Electronic Privacy Information Center says, “User’s don’t have enough information to decide whether apps are too intrusive...People cannot make a meaningful evaluation because they don’t actually know what data about them is being collected – and that’s a real problem” (Davis, 2012).

Jules Polonetsky, the director of The Future of Privacy Forum, says, “The reason I think privacy is going to be critical to mobile is that we are seeing such robust use of data...We are starting to see companies emerging that are appending third-party data, tracking users across many apps and integrating smarter uses of location” (Tode, 2012).

Congress has joined the fight to help protect mobile users who do not understand what is happening to the information being gathered about them. Congress is working to keep companies in check so they do not take advantage of users’ information. Lawsuits over the past few years have contributed to a distrust of LBS. One example is Microsoft, who in 2011 had a lawsuit filed against it for “intentionally designing the camera software on its Windows Phone 7 to transmit latitudinal and longitudinal coordinates, the phone’s unique ID and nearby Wi-Fi access points when the camera is turned on” (Liebowitz, 2011). Microsoft sent a letter to Congress saying they only collect user’s geolocation data with their consent. The final outcome ultimately said that Microsoft’s representation of itself was a lie; they took advantage of user data. This lawsuit came
after Apple and Google were found to be secretly recording and transmitting location data from user’s phones.

U.S. Senator Al Franken, the chairman of the Judiciary Committee’s new Subcommittee on Privacy, Technology and the Law recently said, “Geolocation technology gives us incredible benefits, but the same information that allows emergency responders to locate us when we’re in trouble is not necessarily information all of us want to share with the rest of the world” (Desai, Louer, King, & Wolvin, 2011).

Minimizing Privacy Issues

Privacy concerns must be minimized because they are affecting the growth of LBS advertising as well as the ability to effectively target users with a valid and complete profile. It is important for advertisers and businesses to understand that what excites them about LBS does not usually excite the user. Wilson Kerr, the vice president of business development and sales at Unbound Commerce in Boston, makes a good point: “As long as real value is being delivered in exchange for the sharing of location information, the privacy issues shrink into the background” (Kats, 2012). However, this is not to say that marketers can do whatever they want just because they offer someone a great value. Marketers have to employ “fair information practices, which is...a principle that attempts to balance the privacy interests of individuals with the legitimate need of business to derive value from customer data” (Cleff, 2007).

This is absolutely true and guidelines should be laid out before LBS become the norm and users feel forced to accept a lack of privacy. There are several things advertisers and businesses should keep in mind when using LBS and discussing how to potentially regulate it.

- LBS’ designs need to include security for the user and the user must know about it
As an entity gathering data on someone, that data has to be protected and users must be assured that it will not end up in the wrong hands.

There has to be a clear choice to opt out and users should be allowed to revoke consent at any time.

Data collection should be limited to only what the advertiser or business needs and nothing else.

Gonzalo Mon, attorney with Kelley Drye & Warren LLP at Washington D.C. puts it this way: “It is important that marketers do not collect more than they need...Although there may be a temptation to collect as much data as possible, companies should generally collect only the information they need for an app to work. Additionally, marketers should disclose their privacy practices by giving consumers information about their privacy practices before they download an app” (Kats, 2012).

It is good to know what advertisers and businesses should do, but they are not always going to follow the rules as has already been seen with Microsoft. The FTC is stepping in to help Congress introduce legislation that would hold LBS designers legally accountable. In the beginning, the FTC permitted self-regulation, but that is changing. While the FTC cannot pass laws, it can draft guidelines and amend existing rules to include LBS regulation. The FTC is now very active in recommending that Congress should pass more stringent LBS laws.

Lawmakers are clearly struggling to keep up with LBS technology, which makes it hard to pass relevant legislation in a timely manner. However, the legislation that has been proposed requires the following guidelines be followed (Desai, Louer, King, & Wolvin, 2011):

1) From the Location Privacy Protection Act of 2011, “express consent displayed on a handset or other mobile device, separate and apart from agreement to a privacy policy or
similar document, before collecting and sharing location-based information from a mobile device user’s handset.”

2) From the Do Not Track Kids Act of 2011, “expand the Children’s Online Privacy Protection Act (COPPA) to cover mobile applications, and require express consent prior to the collection of geolocation information.”

3) From the Commercial Privacy Bill of Rights Act of 2011, “require the FTC to establish regulations related to the collection and transfer of personally identifiable information, including for location-based advertising purposes.”

Unfortunately, each of the pieces of legislation has yet to be passed, which leaves the industry to continue self-regulation practices. Businesses are encouraged to look into and follow any laws already in place that might apply to LBS. If the industry is able to effectively regulate itself using existing guidelines, legislation may not be needed.

The Future of LBS

Throughout the process of researching this paper, two important things were learned: 1) LBS have a very important role to play in the future of mobile advertising and 2) LBS are still fairly new and have a lot of room to grow. By referencing the diffusion of innovations, one can assume LBS have not yet reached their tipping point. Privacy issues will continue to be a front running issue and that may never change, even if usage increases. All consumers can do is to voice their concerns and rely on advertisers and businesses to respect their wishes or hope Congress steps in to hold marketers legally accountable.

LBS follow the diffusion of innovation theory (Kintigh, 2011), which suggests a product is diffused into a society in stages. The first stage is innovation, the second is the early adopters
(they tend to be opinion leaders) and the third is the early majority. The early majority stage may be a lengthy process, but the end result is a tipping point into the larger part of society accepting an idea. LBS are somewhere in the early majority stage and are a few years from reaching that tipping point. Privacy concerns are the biggest impact on the amount of time it is taking for users to adopt LBS.

LBS are still in a developmental phase; they may have been formally introduced to users in 2005, but wide acceptance is still lacking seven years later. We know from previous technology introductions that it is not until the larger segment of the audience warms up to an idea does it really begin to take form. Check-ins are popular now, but the feeling is that mobile commerce will start to play a larger role: “...the future of location-based marketing is about more than just check-ins. While Foursquare... opened our eyes to the potential of marketing via GPS-enabled devices and made check-ins part of the language, the category is much bigger than one company” (Peterson, 2012). Even the mobile applications and ad networks identified in this paper have unique uses for LBS and are still trying to improve upon them.

While privacy is a concern, it is not a worry that the use of LBS will slow significantly and it definitely will not disappear; it is too much a part of everyday life even if users do not realize it. Also, LBS are not unique in concerns about privacy; they will go through the same processes that social media have gone through. Education and getting used to how these services
work will bring more users as well as an understanding from advertisers that they must respect user’s privacy. Likewise, Congress will continue to introduce legislation and eventually laws will be passed, but it may not be soon. Congress is still trying to figure out how it can regulate LBS and until it has a solid understanding it is likely that nothing substantial will be passed.

To sum it up: “That future in which a bus shelter ad equipped with geofencing technology scans your smartphone as you stroll by—inviting you to, say, a free latte or a cut-rate back rub—may not be so far off after all” (Peterson, 2012).
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