

Issues in Location Based Marketing: A Review of Literature

Ahmad Jaradat^{*}, Noor Azian Mohamad^{**}, Ahmad Asadullah^{**}, Seyed Ebrahim^{**}

^{**} Information System Department, International Islamic University Malaysia

Abstract- Location based marketing has clearly become a primary element in today's business. The main objective of this paper is to analyse such a growing phenomenon of using such location services by both marketers and customers, providing some motivations and factors that drive both parties to use these services. In addition, some popular applications in this field are mentioned as a real world example to provide deeper understanding on how such applications can facilitate our lives. Finally, an analysis on the issues regarding this topic is made which covers an expected problem in some applications as well as other issues related to the consumers and companies.

Index Terms- Location based marketing, location services, Customers, Marketers

I. INTRODUCTION

In general, marketing is the overall process which holds the value of product or service to customers. In today's environment, consumers are more fragmented than ever before and marketers are looking for alternative and innovative ways to capture people to earn peoples' attention and connect with these fragments. As a smart phone user the possibilities of Location Based Marketing (LBM) on smartphones are being extended which make it easier for such services to be delivered. It is a critical for marketers to launch LBM services since it allow them to develop innovative applications and services to provide a better customer experience.

According to Mobile Marketing Association [1], Location Based Marketing is defined as any application, service, or campaign that incorporates the use of geographic location to deliver or enhance a marketing message/service. Geographic location data may be obtained via a wide variety of methods and technologies. A consumer can directly provide a Postal Code, Zip Code, or City; or the precise location of the consumer and their device can be automatically determined using services provided by mobile operators or automatic detection of location as determined by the hardware, i.e., GPS-enabled or, Wi-Fi-enabled devices. Marketers can use this geographic location as a means to deliver a more relevant, targeted advertisement and/or a service, to the user.

It can generally be observed that people these days tend to use new forms of services rather than the traditional ones. For instance, consumers tend to seek information inside the store from their smartphones not from the salesperson, as they want to have a new experience and enjoyment. Therefore, marketers should consider this when they use mobile marketing.

A survey conducted by salesforce marketing found that 63% of consumers who don't use this feature simply don't want to share their location. An additional 35% say they don't want to participate because it decreases battery life. On the other hand, 76% of those who actually use location-sharing say it help them receive more meaningful content, and 73% rate this feature as useful [2].

Generally speaking, there are two types of location based services [3]. The first type sends location-based information to the device after a prior user request which is called Pull-based, whereas their counterpart and second type are Push-based services, which are not triggered by a direct user request. Although Location Based services are more social, more tangible, less disruptive, and more targeted, but there are some issues that need to be considered by both marketers and customers. Therefore, this paper is going to discuss some of these issues in Location based services in depth.

II. CUSTOMER ACCEPTANCE OF LBM

As each customer has his own attitudes and perceptions toward his or her buying behavior, it is important to understand that each customer has his or her own point of view towards LBM. However, there are some common factors which influence the consumer acceptance of such services. According to Janice Y. Tsai (2009) more than half of the purchase decisions are made within the store. Therefore, marketers are trying to notify the consumer about a product as they pass by which obviously boosts the number of purchases [4].

Without doubt, marketers who have started providing LBM services for their customers should focus on the main factors that have huge impacts on it when it comes to the customer using their services. In a study conducted to specify the factors that have most influence on the customer behavior, three crucial factors were identified which are usefulness, ease of use, and fun [5].

Regarding of the usefulness of a system, consumers should be satisfied with the benefits that come from using specific services. Clearly, consumers will not use any service which does not bring them any benefit. In addition for that, they need an application or

service which is simple, attractive and easy to use. As for enjoyment, the new applications should have the ability to entertain customers as they simply and always want to have fun from using such applications.

An interesting example about customer entertainment is what some health companies do in Russia. If some people do a specific number of squat in a given amount of time, they get free subway train ticket. This makes consumers having fun while they achieving a company's target in increasing general health among people.

III. PRIVACY

It is generally observed that in the world of marketing, data is considered as a serious investment. As long as the marketers have more data about customers, they can provide better services which as a result increase their profits. This seems easy for marketers, but when it comes to the consumers it gets complicated. Simply talking, consumers need to be given a choice, which makes them more comfortable about collecting their data. They need an option to either turn off notifications or out of App.

Allowing consumers to have a variety of options like choosing how many messages they can receive in a day, what topics they would like to receive messages about, and during what time of day they'd like to receive messages results in happier consumers. According to Asif Khan who is the founder and president of location based marketing association, he says "*When you give consumers that kind of control, they readily jump into it*".

As a possible solution, instead of asking customers for permissions to track their locations or to get consent about pushing them some ads messages, companies can ask them to sign up a location specific list or SMS list. Another possible solution suggested by Y. C. Toby Xu is hiding the identity of the users, which gives him an opportunity to specify the locations for which he is willing to reveal his position [6].

IV. SECURITY

One of the possible threats to consumers is stealing their identities or using their information anonymously. Criminals can use location data to steal identities when location data are disclosed, particularly when they are combined with other personal information. By illicitly gaining access to these profiles, criminals acquire information such as a consumer's name, address, interests, and friends and co-workers' names.

Another security threat is cheating or providing a fake location by the consumer. In some cases, a user may want to get rewards from venues or impress others by claiming a false location, which has become easier these days due to the existence of some applications available on the market that can automatically check people into their desired venues, e.g., "Autosquare" for Android [7].

Several techniques for enhancing the security of location information have been suggested by different researchers. According to [8], they have suggested "*address mapping*" to geo-locate IP addresses to locate mobile phones. It is one of the possible solutions that can be used anywhere, and it has a low cost and easy to implement by the stores' owners.

As a real example of location cheating, Foursquare encountered some cases of the basic cheating method which worked in its early days. As a solution, Foursquare has adopted the cheater code to defend against the location cheating attacks which verifies the location of a device by using the GPS function of that device.

V. ADAPTIVE SMART CONTENT

Without any doubts, location based content is an excellent way to connect with consumers and make them feel right at home. Customizing content based on what they want and need is crucial for marketers. Nowadays, they should adopt the latest new technology to be able to provide customers with high standard and smart services, which can do a more complicated data processing and artificial intelligence techniques in order to provide smart contents which help the customers to make decisions.

The content should be adaptive, which can be changing based on where the customers are. As an example, when a customer gets closer to a cinema in a particular shopping mall, he or she receives SMS telling him about an offer on a movie he or she might be interested in based on his past preferences. In the tourism sector, some airlines companies have started providing such an adaptive content for passengers inside their planes, by showing ads on the Seat-Back screen based on the current route of the plane. Obviously, this will let the passenger have greater travel experience while he or she is inside the plane by entertaining him and providing him with information he is interested in about the new country he or she is visiting. In addition for spatial content, marketers should provide ads changing based on weather. For example, when it starts raining, the ad will change showing the pictures of coats.

As a possible solution Harsha Tummala et al. mentioned the use of Tiger data sets to calculate the latitude or longitude of the user, the extensibility of this type of location estimation technique is questionable [9].

A user at a particular geographic location might not be interested to receive notifications about sales discount in a mall few miles away. Therefore, Y. L. Allan & Brimicombe have suggested to create a space time envelope to limit the area of relevance for the user. This envelope is built using current position, direction of travel and some parameters defined by the user. Therefore the amount and type of location related data that the users receive are influenced by the shape of the space time envelope [10].

Recently, a new technology solution has been announced by GE lighting and ByteLight, which provides exciting new location-based services using GE LED infrastructure [11]. This technology combines Visible Light Communication (VLC), Bluetooth Low Energy (BLE) and inertial device sensors, and supports any Android or iOS application on a smart device equipped with a camera and/or Bluetooth Smart technology. As a result, marketers will be able to deliver contextually relevant content such as personalized shopping lists easy-to-follow map.

VI. DESIGN

For those companies trying to provide location based services, it is crucial to keep specific aspects in mind when developing user interface for mobile applications. Significantly, the use of mobile applications is increasing steadily on a daily basis and more and more consumers want applications that simplify their lives, make their work easier, and provide entertainment. Any application should be designed considering the fact that customers are affected by specific factors which make them decide to use or not to use the application. Lots of navigation and buttons, bright colours and excessive graphics are all examples of factors that will contribute to the user friendliness of the application. Recently, Foursquare has developed beautiful new maps, using a totally custom styled design with enhanced colours, fonts, and iconography. These new maps are specifically designed for functionality with 60 million venues in its database. It's unique, and its maps need to be designed to make it even easier for users to engage in this unique social searching.

VII. BOWER CONSUMMATION

Building low-power location-based services that can run for hours on mobile phones is challenging. Without doubt, this is one of the reasons why consumers are reluctant to use location based marketing services which as a result they are unable to benefit from such a services. In a study conducted in Aarhus university to find some methods that minimize battery consumption, the basic idea is to relax the required positioning accuracy from "the highest possible" to just what's necessary. This can be applied to both the phone and servers [13]. Other studies proposed different solutions such as decreasing the frequency of position estimations by using error models to estimate the position as well as using of caching to avoid frequent transmission of LBS related data. One application that has almost overcome this problem is iBeacon, which uses a low energy Bluetooth 4.0 technology introduced by Apple which makes it possible to detect how close an iPhone is within a range of max 50m

VIII. PERSONALIZATION AND MATCHING CONSUMER'S PREFERENCES

Personalization for location-based messages will be taken to the next level in the future, and retailers and brands are beginning to understand this. Clearly, the biggest key when jumping into location-based marketing is giving consumers control of their preferences—it's not just an opt-in or opt-out scenario. As the founder of LBMA (Khan) says: "If you want to do this really well, give the customer a lot of control in what they want to receive from you. We believe that modern consumers understand that their data has a value, and there's a value exchange for that data. If you provide something of value, they're more likely to share that data."

Companies should provide their customers with notifications that match their preferences. Engaging consumers is a very important process, and it can be achieved if the message content is something to be appreciated by them. By doing so, companies can avoid losing potential customers.

IX. HOW MARKETERS MAKE SURE THAT THE CUSTOMER SEES THE AD

One of the challenges marketers have had with location-based marketing is having assurance that the target consumer sees the message while they are still at the intended location. In general, the chances of their audience seeing the ad when the context and impact is greatest are still very low. Marketers should send messages that deliver relevant, engaging and valuable experiences in order to keep and grow the trust that consumers are placing in brands. A suggested approach by Bryan Stollle has been working well, which is to use location-verified social media posts from consumers as the catalyst for conversation. By keying in on the context of the post, the person, and other real-time conditions, brands can have a more informed communication and increase their chances of 'hitting the mark.' Take Heineken's recent @wherenext campaign that encouraged people to geo-tag their Tweets to receive location-based advice on the best places to go near them in real-time. This forward-thinking approach included a specific call-to-action from Heineken to the consumer that encouraged them to reveal their current location in exchange for exclusive and valuable information – a true handshake between brand and consumer [12].

X. CONCLUSION

The potential of LBM to provide value and foster innovation to benefit the economy and consumers is tremendous. –It is transforming the ways people across the world conduct business, organize their lives, and have fun. Location-based marketing is here to stay and will provide companies with another avenue to reach out their customers in a new, inexpensive and faster way. Companies that embrace it will be more agile than their competitors while those that don't will be left behind.

Location-based mobile marketing brings about the convergence of online marketing and the physical shopping experience. Preferred tools include QR codes, click-to-call, coupons and mobile apps. Fewer than one-out-of-four offline businesses are making effective use of these tools. Those that are have already gained considerable advantage over slow adopters, but all is not lost. It's still early and there's time to catch up and capture market share with location-based mobile marketing.

REFERENCES

- [1] Mobile Marketing Association, "MOBILE LOCATION BASED SERVICES MARKETING WHITEPAPER," pp. 4-5, 2011.
- [2] Salesforce, "Mobile Behavior Report: Combining mobile device tracking and consumer survey data to build a powerful mobile strategy," Salesforce, 2014.
- [3] B. O. M. W. K. P. Lorenz Hilty, *Lokalisiert und identifiziert Wie Ortungstechnologien unser Leben verändern*, Vdf Hochschulverlag, Zurich, 2012.
- [4] P. G. K. L. F. C. N. S. Janice Y. Tsai, "Location-Sharing Technologies: Privacy Risks and Controls," *Journal of Law and Policy for the Information Society*, pp. 119-151, 2009.
- [5] R. K. Iris Uitz, "Consumer Acceptance of Location Based Services in the Retail Environment," *International Journal of Advanced Computer Science and Applications*, pp. 124-131, 2013.
- [6] Y. C. Toby Xu, "Feeling-based location privacy protection for location-based services," in *Proceedings of the 16th ACM conference on Computer and communications security*, 2009.
- [7] L. M. R. Wenbo He, "Location Cheating: A Security Challenge to Location-based Social Network Services," in *International Conference on Distributed Computing Systems*, Minneapolis, 2011.
- [8] M. V. R. Mahesh Balakrishnan, "Where's that phone?: geolocating IP addresses on 3G networks," in *Proceedings of the 9th ACM SIGCOMM conference on Internet measurement conference*, 2009.
- [9] J. J. Harsha Tummala, "Developing spatially-aware content management systems for dynamic, location-specific information in mobile environments," in *Proceedings of the 3rd ACM international workshop on Wireless mobile applications and services on WLAN hotspots*, New York, 2005.
- [10] Y. L. Allan Brimicombe, "Mobile Space-Time Envelopes for Location-Based Services," *Transactions in GIS*, pp. 5-23, 2006.
- [11] ByteLight, "Press," 29 May 2014. [Online]. Available: <http://www.bytelight.com>.
- [12] B. Stolle, "Message To Marketers: Location-Based Marketing At Its Best Is A Two-Way Street," 9 September 2014. [Online]. Available: <http://www.forbes.com/sites/bryanstolle/2014/09/09/271/>.
- [13] M. Kjaergaard and A. University, "Location-based services on mobile phones: minimizing power consumption," in *IEEE Pervasive Computing*, 2012.
- [14] W.-y. Yan, "Mobile map service with scalable vector graphics," in *Geoscience and Remote Sensing Symposium, IGARSS, Anchorage, 2004*.
- [15] F. H. A. T. Sebastian Meier, "A comparison of location search UI patterns on mobile devices," in *proceedings of the 16th international conference on Human-computer interaction with mobile devices & services*, New York, 2014.
- [16] M. S. Z. K. T. S. T. A. S. R. Chen-Wei Tan, "A Glimpse into the Research Space of Location Based Services," *JOURNAL OF ADVANCES IN INFORMATION TECHNOLOGY*, pp. 91-106, 2012.

AUTHORS

First Author – Ahmad Jaradat, Information System Department, International Islamic University Malaysia, ahmadjaradat2014@gmail.com

Second Author – Noor Azian Mohamad, Information System Department, International Islamic University Malaysia, noorazian@iiu.edu.my

Third Author – Ahmad Asadullah, Information System Department, International Islamic University Malaysia, vip.kl.iiu@gmail.com

Fourth Author - Seyed Ebrahim, Information System Department, International Islamic University Malaysia, hosseini.qalati@gmail.com

Correspondence Author – Ahmad Jaradat, Information System Department, International Islamic University Malaysia, ahmadjaradat2014@gmail.com