

USING LOCATION BASED MARKETING TECHNOLOGIES FOR BETTER BUSINESS ANALYTICS

Dr Faidon Komisopoulos^{1*}, Mr. Spyridon Kourkoulos²

¹Dept. of Business Administration, Technological Educational Institution of Athens, fedonk@hotmail.com

²HR & Marketing Professional, skourkoulos@gmail.com

ABSTRACT

Nowadays, finding effective ways to reach consumers has become the biggest challenge that marketers face. Location has become the new currency of marketing due to increased mobility of consumers in developed countries. Companies are interested in acquiring mobile, location and social information as its quantity is increasing exponentially and tracks consumers' buying patterns which is very important for decision making from the marketing perspective. Therefore, it becomes a necessity for firms that do not have the ability to gather data, invest on information technologies based on data-driven decision making to gather and analyze incoming information to be more competitive and gain market value. The scope of this paper is to present major ways of tracking customers, mainly in big retail places, like malls, collecting data on their moves and behaviors and using those analytics for better sales performance.

Keywords: Location Based Marketing, Data Driven Decision Making, Business Analytics, Big Data, Retail, In Store Marketing, Anonymous WiFi Tracking

1. Introduction

The macro environment that firms operate has dramatically changed the last few years especially due to the advent of the economic crisis. The changes that have occurred due to technological advances and globalization had significant influences to both enterprises and consumers. These changes have led to borderless, connected knowledge economy, fragmenting and frictionless markets on the one hand and better informed and more demanding customers on the other. New technologies allow firms to get a wealth of information about current and potential customers: demographics, purchase history data, customers' lifestyles, values, needs, motivations and priorities. Therefore, it becomes a necessity for firms that do not have the ability to gather data, invest on information technologies based on (DDD), data-driven decision making to gather and analyze incoming information to be more competitive and gain market value.

2. Data driven decision making

Data-driven decision making (DDD) is the practice of basing decisions on the analysis of data rather than solely on intuition. An apt example would include a marketer who could select advertisements based exclusively on his experience in the field and his intuition. Also, he could ground his selection on the analysis of data concerning the consumers' reaction to different advertisements, or even use a combination of these approaches. It is worth mentioning that DDD is not an all-or nothing practice enabling various companies to ply DDD to greater or lesser degrees, thus creating several benefits. Recently there has been conducted a study on the ways DDD enhances a company's performance by economist Erik Brynjolfsson and his colleagues from MIT and Penn's Wharton School (Brynjolfsson E., Hitt L.M., and Kim H.H. 2011). Enterprises have been rated as to the extent they use data to decide for the firm according to a measure of DDD. The result depicts statistically clearly the fact that the more data-driven a firm is, the more productive it is. Nevertheless, the differences are not negligible, as one standard deviation higher on the DDD scale is related with a 4-6% increase in productivity.

Data science is set of elementary principles and tools that support and guide the extraction of information and knowledge from data, structured, unstructured or semi structured. Very close to that is the "data mining" meaning.

Targeted marketing, online advertising, and recommendations for cross-selling are based on the above mentioned meanings and its tools. Data science is also applied for general client relationship management to research client behavior so as to manage attrition and maximize expected client worth. Big retailers from Wal-Mart to Amazon apply information science throughout their businesses, from promotion to supply-chain management. Nevertheless, data science involves far more than simply data-mining algorithms.

Data science involves principles, processes, and techniques for understanding related or unrelated variables via the (automated) analysis of information for better decision making.

What's in there for the client

Organizations exploit the potential of computer science either to understand decisions taken by individuals outside of their organization (customers, competitors), or to facilitate decisions within their organizations:

- Anticipating decisions: Artificial intelligence that predicts human decision is analyzing patterns in outcome information, the actual decision made under certain circumstances. By analyzing massive volumes of information on human behavior, patterns are unveiled, permitting these systems to predict behavior based upon them.
- Facilitating decisions: by understanding the linear or non linear reasoning of the human mind, code will predict the information a user desires and supply relevant data and intelligence even before a user has realized this information would be available in helpful.
- Increased revenue – As internet outlets manage to guide their guests, through their offerings and supply suggestions that higher suit their visitors' preferences, they're ready to build additional sales and increase their revenue.
- Price reductions: Organizations that improve the potency of their operations (due to the use of business intelligence), will be able to offer cheaper products, thanks to cost cutting techniques supported by AI.
- Client satisfaction: quicker response and delivery times, fewer redundancies and flaws, tailored approach will innovation management techniques, such as CRM software, greatly enhance a shoppers experience once interacting with an organization and may generate customer loyalty
- Increased productivity: Business solutions that use AI are ready to make decisions in less time, make a cost estimation of applied strategies faster and may increase the extent of their proactivity.

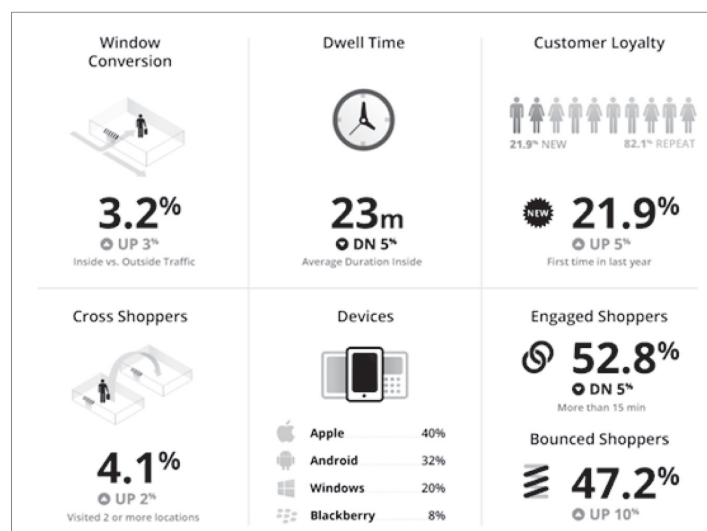
What kind of data can be gathered and how

In the market many firms especially in the USA, Canada and Asia have launched solutions that provide analytics for customer behavior. Data provided by such systems cover a range of areas such as

- Reveal walking paths, guest behavior, preferences and footfall analytics
- Identify new guests, frequent/loyal customers and dwell behavior
- Benchmark performance across regional shopping centers portfolio
- Identify under and over performing spaces
- Shopping paths at shopping stores within malls
- Monitor sales as well as performance of ad campaigns and marketing initiatives
- Insights across all shopping center spaces

Usually these solutions do not require the customer to download an application or to check in, however it is necessary customers to enable wifi at the devices. Consumer privacy was amongst the major concerns that customers arise: all firms that have launched Mobile Location Analytics claim that protecting customers' privacy is of utmost importance. Besides, all firms offer fully anonymity to consumers that enter a retail outlet.

Figure 1. Aislelabs' Flow system actionable insights across stores



When someone comes in a shop (or even passes by) with their mobile phones' Wi-Fi capability turned on, the smart-phone continuously transmits hello packets so that anybody can detect that device when it comes in the shops network. It does not have to be connected, the unique MAC address of the smart phone is already transmitted with the "hello" packet, so the shop can take advantage of the "anonymous Wi-Fi tracking" and realize for example how many times the specific Smartphone (and its owner) have been around, for how much time etc.

The same data can be represented on the stores map, in order to help retailers rearrange their shop accordingly.

By adding many points (network connectivity devices such as more Wi-Fi's and Beacons) we can have better proximity and the information required to know how many of the smart phone owners entered the shops door instead of just standing over the shop's front, and on which sections exactly did the shoppers spend their time.

On the other hand, if the Smartphone accepts the connection with the stores network, an application can be downloaded and installed on the device, so specific offers. The store management can run campaigns and get more detailed analytics.

A shops or a malls management can have all available data concerning daily activity of the customers, manage campaigns with advanced campaign management panel and decide whether launching new promotional activities.

Figure 2. On demand conversion funnels

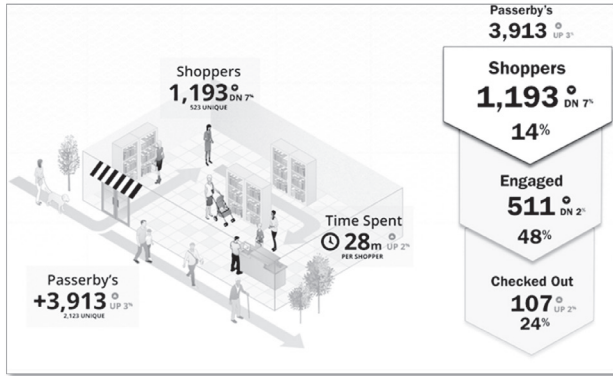


Figure 3. Flows' Heat map and Top paths screenshot

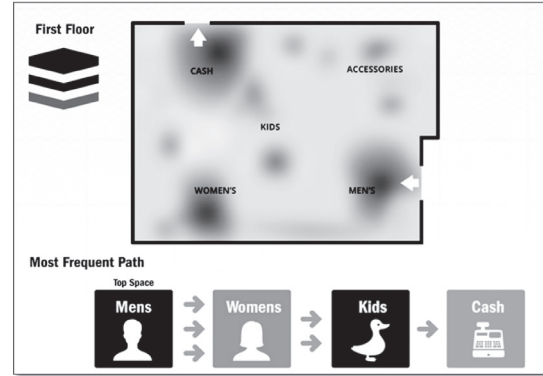


Figure 4. Spaces and drill down options

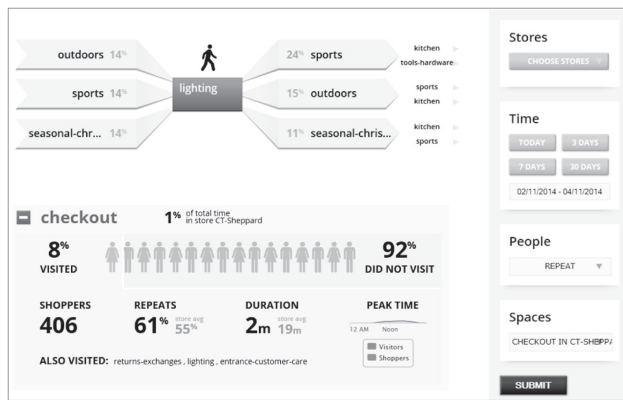
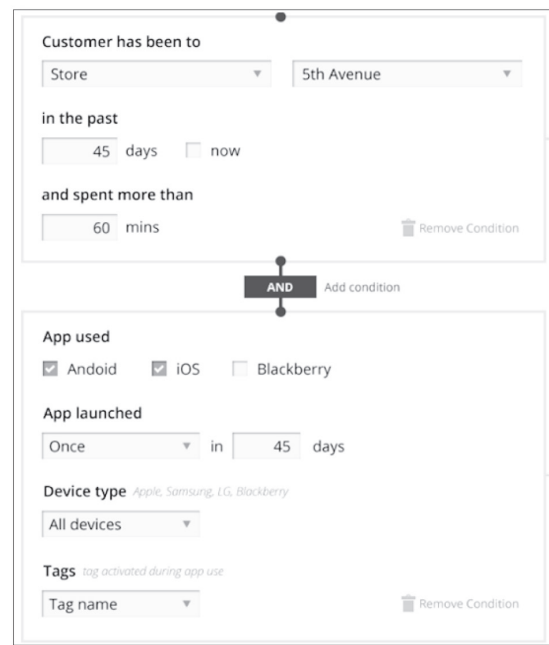


Figure 5. Aislelabs' engage feature to create segments by visits or by usage



All kind of comparisons (ex location, impressions, loyalty) provide rich insight into customer behavior as it relates to the stores business. Understanding how (loyal or not) customers shop, marketers can improve their strategy.

Once the shopper has reached the store area, there are many opportunities for engagement as shoppers can scan barcodes or QR codes, search product information or request personal shopping help. As after sales opportunity, the management can promote surveys or encourage a future visit.

3. Conclusion

As information storage, processes, methodologies and philosophy become more and more refined, available and cheap with techniques as "Software as a Service" etc, organizations around the world use, create and share large data repositories every day. Scientists estimate that the output and productivity of companies that adopt data-driven methodologies have a better return on investment (ROI) on their investments'.

These companies additionally perform higher in terms of employee satisfaction, equity and market share. Growing investments in information management and analytics reflect the increasing strategic and economic role of information.

Figure 6. Managing customers segments and starting campaigns

Segment Name	Total Users	7 Day Activity	Campaigns
Popular Segments			
Passerbys who never visited Passerbys who do not visit	1,309	22.9% used app 11% visited a location 5% connected	3 Start Campaign
Trial Room Visits Visitors who went to trial rooms	13,427	46.5% used app 29% visited a location 19.3% connected	5 Start Campaign
App Power Users Visitors who use app frequently	958	89.7% used app 13% visited a location 75% connected	2 Start Campaign
Regulars Visitors who visit frequently	9,291	46.5% used app 29% visited a location 19.3% connected	13 Start Campaign

Figure 7. Visual dashboard with to-the-minute metrics

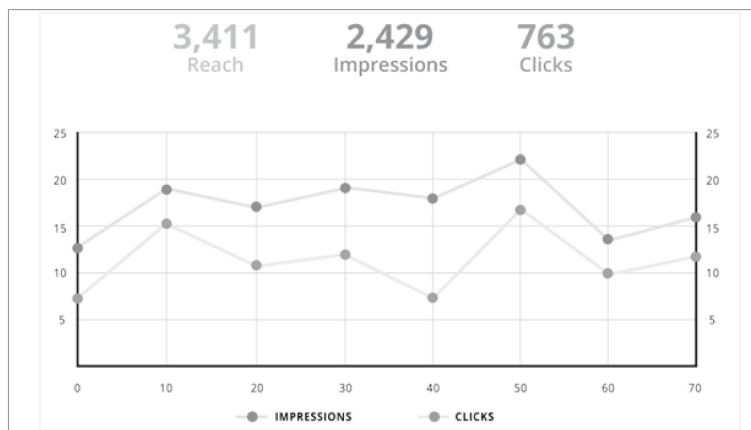
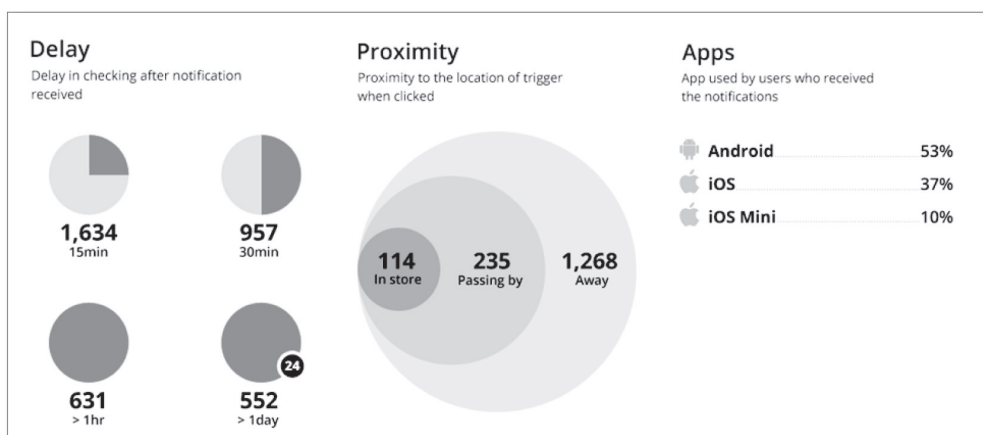


Figure 8. Detailed analytics on performance of campaigns



The amount of information concerned could take issue considerably across sectors, as some are more data-intensive than others.

Overall, the promise of the gathered “big” data lies in one or more of the below innovation-related areas:

- Use of information for the design and production of contemporary product (goods and services).
- Use of information to optimize or automate operations management
- Use of information to boost promoting, selling, cross selling and after selling.

<https://sites.google.com/site/icqqmeas2015>

- Use of information for brand new structure and management approaches (data-driven organizational innovation)
- Use of information to promote research and development.

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