

Modern day advertising involves a substantial amount of information being collected and analyzed to maximize profits. Advertising has always been a lucrative business that has very fluctuating levels of effectiveness. During the 20th century, advertising generally took the form of radio, television, and billboard marketing techniques. These methods offer a limited amount of feedback from the audience. What might be considered modern advertising began in 1994, when the web magazine, Hotwired, sold the very first online banner ad to AT&T for \$30,000, which produced a click through rate of 44%. After this display of great success in online marketing, firms like WebConnect started to use information to target their advertisements so they would be more relevant to their visitors. At the turn of the century, as the dot com bubble rose and Google was becoming a tech giant, Google started to offer a PPC (pay-per-click) model and acquired AdSense, both of which were attempts of integrating more information into advertising.

Nowadays, Google and Facebook are the two largest leaders in targeted online marketing. Both companies have unique approaches to collecting information about their users to improve the relevance of their ads. Take a look at Facebook in detail as an example. Facebook has been building their social media platform beginning in 2004, which has been building one of the stores of personal data in human history. The number of people who use Facebook and the amount of data they share about themselves on the network makes Facebook worth over 600 trillion dollars in 2020. Worldwide, Facebook has approximately 2.50 billion monthly users and growing. This represents a significant percentage of the entire world population. A company of its scale has certainly learned how to manage and capitalize on the data of its userbase. “Founded in 2004, Facebook’s mission is to give people the power to build community and bring the world closer together. People use Facebook to stay connected with friends and family, to discover what’s going on in the world, and to share and express what matters to them.”, according to Facebook CEO and founder, Mark Zuckerberg. Nowhere in that mission statement does he mention collecting and selling their users data to make most of their revenues. So how does Facebook use a platform developed for connecting friends and family over the internet to provide targeted advertising opportunities? Facebook knows lots of personal information about the average user. Most Facebook users share their interests, affiliations and location with the tech giant, giving them lots of points of interest that they can sell to advertisers. Modern Facebook has developed even more advanced approaches to identifying key traits of users. They can use artificial intelligence to analyze their network to gain even more value from it.

Google has a marketing approach which is similar to that of Facebook but has its own intricacies to deal with the type of data they handle. The search engine giant can leverage a user’s search queries to make decisions about their interests, applying advertisements to target those interests. Google labels this type of marketing “Remarketing”. Google can track when users make specific search queries then subsequently visit certain websites, allowing advertisers to “remarket” to them. For instance, a user could search for real estate near them and click on a result for a real estate firm. After some short browsing on that firm’s website, they might lose interest and click away. Google provides that firm the opportunity to display ads to the user in the near future on millions of other websites in attempt to regain their

interest in real estate. Wordstream claims that remarketing can close near five times more sales than initial advertisements. Google's remarketing campaigns are offering a marketing stream that has been previously unavailable to advertisers. The data generated by Google and Facebook has opened up a world of advertising that is not possible without the feedback of an information system.

Advertising is not an independent system, however. It utilizes, if not requires, the input from users and other information systems. Another primary way Google conducts marketing is what is called PPC (pay-per-click) advertising. That is how Google allows advertisers to place advertisements in line with standard Google search results. PPC ads are not only effective because they are well placed between search links, but they are some of the most targeting advertisements on the internet. Google knows exactly what you are looking for based on your search query, and intelligent advertisers can use this information to provide the user with exactly what they are looking for when they are looking for it. This would be valueless to Google if it wasn't for the infrastructure, they built with their search capabilities. Same goes for Facebook whose advertisements would be non-targeted without the system of users which actually use Facebook to interact with friends and family. Facebook as a social media site is an information system by itself. They have managed to use user data to effectively connect more people than ever before. The same information that permits targeted advertising opens a whole new world for connecting people with similar interests. The same point can be made for Google and their astronomical system of information which categorizes the entire internet as we know it. People can now connect with data that would have otherwise been unavailable to them. In a way, information systems which guide interpersonal connection go hand in hand with those which inhibit targeted advertisements. This begs the question of why this is the case or if this connection is a necessary one. It is possible that it is necessary in the same way that the internet is necessary for the spread of information. Of course, information had no trouble reaching people without the internet, but it provides a path of least resistance that makes older ways of spreading information obsolete. Why send snail mail when you can send an email that arrives in a fraction of the time. Why spend more time and money advertising to a wider audience who may not receive your message, when you could spend a fraction the cost and see returns many times that. The combination of human personal information systems and advertising has dramatically increased the efficiency of both systems and it seems unlikely that either will go away soon.

Modern advertising has had strong influence in the communication between advertisers and their audience, as well as peer to peer within these networks. In a way, targeted advertising has allowed companies to have a much more personal connection with potential customers they have never met before. The information that advertisers know about you allow them to speak to you on a person to person level, as if they know you. They can provoke an emotional connection with people based on just a few datapoints. Yes, this is very effective for those who are advertising, but how does the public feel about this. One could argue they feel manipulated by advertisers, who are creating a false human connection between themselves and customers just to increase profits. There certainly is a very robotic feeling about the system, almost creepy, that some organization could know more about you than your

closest friends, and then manipulate you into spending your money based on these facts. At the same time, most people wouldn't complain that Facebook and Google use this data to improve their services to the user's benefit. The more you use Google, the better information it will provide to you. As you develop your Facebook profile, it can better connect you with people of similar interests.

In the recent years, these methods of online marketing have become very controversial for both moral and legal reasons. It seems relevant to bring up the case of the 23-year-old girl who shopped at Target. Much like Google and Facebook, Target uses analysis of user data to make targeted advertisements for their customers. They use shopping trends and a particular users previous purchases to predict certain common datapoints. The story is of a girl who was early in pregnancy and started buying certain products at Target that they flagged as being more likely to be bought by somebody who was pregnant. Naturally, Target mailed coupons relevant to pregnant women to her house, where her father was appalled at the fact, they would send her irrelevant advertisements. Little did her father know, he was ignorant to her being pregnant. How can the modern world be comfortable with an information system that knows more about our family and friends than we do?

Targeted advertisement has many benefits and has dramatically reshaped the economy in the last decade. Along with countless other examples, technology has reduced the cost of business opening the market to more people. But it seems like there is a cost to the user. How is the average person's privacy affected by large companies like Google, Facebook, and Target? This is a hot button issue in the late 2010's, commonly known as "Big Data". Do these companies have the right to collect and sell information about their users? Do their users agree to have their data collected? It turns out this question doesn't have a simple answer. In April of 2018, Mark Zuckerberg was summoned to appear in front of the US Congress to discuss the legality of their data collection. Zuckerberg claimed that all users must consent to have their data collected in order to use the service. The answer is questionable. As Congress is attempting to decide whether or not government intervention is required to keep Facebook at bay, they are looking at a particular scandal with Cambridge Analytica. Back in 2016, Cambridge Analytica used Facebook's user data to sway the US presidential election. By identifying people who were unsure about their vote, they were able to run political advertisements in order to sway their vote. Analysts argue that the thousands of votes they managed to change likely altered the final election results. Congress clearly does not take lightly to attempts at making the US elections unfair. This is just one example of how the advertising systems have enabled the manipulation of people that seems questionable at best.

Although data opens the door for malicious manipulation, some people like CEO of NewVantage Partners Randy Bean argue that the advantage of Big Data could be influential in social change and the humanitarian movement. He envisions a future where the future of Big Data involves the fighting for social equality. "Looking a generation ahead, observing the persistent prevalence of absolute poverty, the rise of global inequality, and the many walls and ceilings impeding well-being, we wondered: what will it take for Big Data to have by then served the cause of human progress to the best of its ability and ours?". It is hard to predict the

future of Big Data, whether it will spark good or evil within the world. Will it be outlawed by government long before larger problems will begin to occur?

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