

Identyti : A Document Storage Application

(Technical Paper)

The Evolution of Online Marketing and the Implications of its Current Practices

(STS Paper)

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On my honor as a University Student, I have neither given nor received
unauthorized aid on this assignment as defined by the Honor Guidelines
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From flashy banners to subtle posts on your feed, advertisements have adapted to the decline of traditional media. The increase in popularity of the Internet has made consumers prefer more on-demand and interactive content (“Digital Media - Rise of On-demand Content”, 2015). As a result, advertisement agencies are taking a different approach to marketing that takes advantage of this demand. Although a change in strategy can mean big setbacks for a well-established industry, the Internet has opened up a whole new world of opportunity for ad agencies. With social media posts and streaming ads, businesses are evolving to the new paradigm of consuming content. With people spending more time on the Internet, there is more data about what users are doing online. That data is a goldmine for both tech companies and ad agencies with digital ad revenues breaking \$100 billion in 2018 (Graham, 2019). While this data may mean more relevant advertisements for consumers, this level of personal data mining is unprecedented, and leads to a number of ethical implications. Although these organizations are able to leverage this paradigm shift to turn a profit, users may not be benefitting to the same extent and may even be exploited for their data. Users, as well as policymakers, must take action in response to this change in order to protect themselves from exploitation in the best interest of their security.

However, not all online services have intentions of collecting data in return for providing a convenient service. The technical research of this proposal demonstrates how the Internet can provide convenience in one of the most frustrating processes when dealing with the government, filling out legal documents. With the on-demand nature of the Internet, users should be able to store and transfer important documents electronically to streamline the process of filling out

legal documents. The technical research is working towards creating a web application to accomplish this objective.

Technical Topic

Identityti is a document storage service for documents that otherwise typically only exist as a hardcopy. The client, shared several user stories that illustrates the problem that the service is solving. The user stories highlight how users tend to lose physical documents, spend more time shuffling through physical documents, spend more time organizing physical documents, and cause more hassle when attempting to authenticate physical documents.

Because the documents uploaded to this platform is typically highly sensitive, data security will be a critical challenge to tackle. Login authentication would be performed by Auth0 which already provides an array of mitigating web-app security breaches such as anomaly detection and force email verification (Poza 2018). Additionally, in order to allow clients to access their data from anywhere, the documents they upload will be stored in the cloud, specifically in an AWS S3 bucket. When uploading the documents, the application will save certain metadata associated with the document allowing the client to easily search/sort/categorize the document, making it convenient and faster to find it later. The International Data Corporation, who is a provider of market intelligence, conducted a study on their workers to gauge how much time they spend weekly looking for physical documents. In a group of 1200 workers, IDC found that “they spend an average of 4.5 hours a week looking for documents” (Biddle, 2017). Since Identityti is targeted at both consumers and enterprise clients alike,

searching for these documents on Identityti, whether the client is an individual or a business, will be much faster than searching for physical documents.

One concern for storing sensitive data in the cloud is that these services can be compromised. However, in order to mitigate this issue, the plan is to encrypt the data stored in S3, so that even if the bucket is compromised, only encrypted data can be recovered. By storing these encrypted files in the cloud, Identityti offers a secure and fast solution for clients, allowing them to easily share their documents with enterprises.

Identityti also provides benefits for enterprise clients. A major problem that large enterprises face is the sheer size of information they have to process and handle. Using Identityti, enterprises have the ability to create an account in order to manage all of their employees' data. For example, when onboarding a new employee, an enterprise client could request the necessary documents, such as identification and tax reports, from the new employee through Identityti. In this way, Identityti creates a secure and simple path of communication between enterprises and employees for personal, confidential documents. Instead of requiring users to carry physical documents and submit them to enterprises, Identityti creates a channel to share these documents electronically.

Storing physical documents is stressful and confusing. It is seemingly ambiguous as to what one should keep and what one should throw away, and safeguarding the ones that are kept requires a high level of organization. Identityti alleviates this problem for its users by recommending to the user which documents they may want to obtain and store on the service. Depending on what documents a user has already stored, Identityti will provide feedback on what

important documents are missing, as well as what documents are required for common tasks. For example, when attempting to obtain a driver's license, Identityti will tell the user exactly what other documents are needed in order to apply for a driver's license.

STS Topic

As of 2019, there are over 65 million business pages on Facebook (Zote, 2019). Social media has not only brought people closer together, but businesses closer to their consumers. These pages allow businesses to directly interact with their consumers to answer questions and advertise promotional content. Social media offers many avenues for interactivity, but the greatest advantage that social media companies can offer to these businesses is information on consumers. Consumers' behavior online can be used to analyze their buying habits and ad agencies use this information to display targeted ads to users that would be most likely to buy their product (Goldfarb & Tucker, 2011). A famous example of this is when Target sent targeted advertisements for baby clothes to a girl based off of her previous purchases, which Target's algorithm determined were common items purchased by pregnant women (Wagstaff, 2019).

Technology companies, like Facebook, realize the value of this information for business and have built a dedicated ads infrastructure to help businesses improve the effectiveness of their ads by allowing them to target specific locations and demographics (Standberry, 2019). In the first quarter of 2018, Facebook earned \$13.2 billion in revenue from advertisement sales accounting for 98.5% of Facebook's total revenue ("What Is Facebook's Revenue Breakdown?", 2019). With a business model so dependent on advertising, it makes sense for Facebook to want to increase the number of users and advertisers on their platform.

Controversially, Facebook is allowing political campaigns to put up advertisements that contain false information. When asked if there was an issue with not fact-checking political ads, the CEO of Facebook, Mark Zuckerberg, stated that it was not in his position to “prevent your constituents or people in an election from seeing that you had lied” (Rodriguez, 2019). Whether this decision stems from a moral or business motivation, this hearing still demonstrates the potential impact that fake news on social media can have if not regulated.

The 2016 U.S. presidential election played a big part in exposing the impact of social media on society. In the months leading up to the election, there was a campaign of fake news making its way through various social media platforms (Bovet & Makse, 2019). Out of the total number of fake news site visits, 41.8% originated from social media as opposed to 10.1% for top news sites (Allcot & Gentzkow). This statistic could be attributed to the Facebook and Cambridge Analytica scandal in which Cambridge Analytica used data from 50 million Facebook profiles to help Donald Trump’s presidential campaign (Granville, 2019). While this scandal was a violation of Facebook’s policy and not a data breach, this raises the concern about what would happen if this was a security breach and the data ended up in the wrong hands, such as a foreign power. With this data potentially affecting millions of people, it makes sense for people to be concerned about how their information is being used.

The stakeholders in this issue of personal data usage by social media marketers are businesses, technology companies, consumers, and the government. Businesses are looking to leverage the power of social media to increase their outreach and sales. Tech companies are interested in collecting user data and improving their ad services to attract businesses to advertise on their platform. Consumers would like to receive relevant advertisements for products they are

interested in, but are also concerned about the amount of their data that is being collected. The government is also concerned about the consequences of this data being collected and being used for nefarious purposes.

The main artifacts being investigated in this research are the Internet and online platforms that are used to market to directly and indirectly market to consumers. This research will employ the framework of technological momentum to show the Internet has initiated the change in marketing strategies, which led to technology companies employ its new capabilities to improve its advertising effectiveness by taking advantage of their access to user data. Technological momentum is the theory that in the early stages of a technology, the technology is what drives a change in society. As time progresses and society becomes more accustomed to the technology, its effects become more influenced by social factors, such as the decisions of the technology company. A critique of this framework is that it does not provide much of a new perspective beyond technological determinism and the social construction of technology. However, I prefer to use technological momentum for this research because it factors in the change of technology over time, despite not providing an alternative to technological determinism and the social construction of technology.

Research Question: How has online marketing changed from 2010-2019 and how are users responding to potential privacy implications?

Research Methods

The main research method used in this research will be documentary research due to the abundance of studies that have gathered data that would be relevant for this research question.

Since an important aspect of this research is investigating the shift in online marketing practices, statistics showing change over time will be useful to include. There are also significant events that trigger certain events in the shift between technological determinism and the social construction of technology as it relates to the Internet and online marketing. Articles about and from the time period of the event will be useful to include as they will provide important details of how online marketing has changed. Another research method that will be used is auto-ethnography. As an active social media user over the past decade, I have experienced the change in ways advertisements have been used online and how I, as a consumer, have reacted to them.

Conclusion

At the end of the technical research, a web application will be created to store users' essential documents in order to simplify the process of locating and filling out legal documents. By having these documents accessible online, users will be able to save the time needed to locate physical copies as well as determine the necessary documents for a certain application. This service should be able to securely transfer documents to authorized parties in order to streamline the process on both ends.

The STS research should be able to identify the specific changes in how social media companies and ad agencies are changing expectations for advertising and how users are responding to this change. By identifying the changes, this research should also be able to address the possible consequences of new advertising practices on consumers privacy and

behaviors. In addition to identifying these consequences, this research will also suggest possible actions for consumers and policymakers to prevent or address these negative consequences.

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