

General Research Problem Undergraduate Thesis Prospectus

How can e-commerce companies build trust among customers? Electronic commerce is a rapidly growing alternative to traditional commerce. Digital buyers reached

Connecting At-Home Nurses with Patients Online
(technical research project in Computer Science)

A Cost to Convenience: Consumers Balance Privacy Concerns and Online Behavior
(STS research project)

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by

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Connecting At-Home Nurses with Patients Online
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needs. Given the nature of this functionality and the sensitivity of the data involved, our team

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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General Research Problem

How can e-commerce companies build trust among customers? Electronic commerce is a rapidly growing alternative to traditional retail; the number of worldwide digital buyers reached 1.66 billion in 2017. Global online sales grew to 2.9 trillion US dollars in 2018, nearly double that of 2015 (Statista, 2018a). As the e-commerce marketplace evolves and becomes increasingly competitive, companies are relying on consumer data to offer highly personalized products and services—but not without risk. Customer trust and loyalty are essential to the success of e-commerce companies, but they can lose them swiftly and permanently if they mishandle personal data.

Connecting At-Home Nurses with Patients Online

How can we connect registered nurses with patients needing at-home assistance safely online? My capstone advisor is Professor Weaver of the CS Department and I will work with two other students: Jack Girerd and Emily Roberts. The goal of this project is to create an e-commerce web application that connects patients to at-home nurses on the basis of specified needs. Given the nature of this functionality and the sensitivity of the data involved, our team must prioritize safety and security at all stages of development.

According to the American Association of Retired Persons (AARP), approximately 34.2 million Americans have provided unpaid care to an adult age 50 or older in the prior 12 months. About 6 in 10 caregivers assist with medical/nursing tasks, including injections, tube feeds and catheter care and only 14 percent of these caregivers report having received some preparation or training. Additionally, two in five caregivers consider their situation to be emotionally stressful

and the percent is higher (45%) for those caring for a close relative (AARP, 2015). Our application aims to ameliorate caregivers' stress while improving the quality of patient care by matching caregivers directly with registered at-home nurses seeking hire.

The current available processes for hiring registered nurses are either costly or inconvenient. The first option is the use of middleman agencies that connect caregivers with a pool of nurses that are full-time employees of the agency. The National Nurses in Business Association (NNBA) estimates that these agencies charge an average additional fee of 15-30% on top of the nurse's rate (NNBA, 2019). These agencies often also impose a minimum number of hours required for all shifts. The alternative, less costly option, is to hire a nurse privately—most often finding them through word of mouth (FCA, 2017). This is a time-consuming option as it requires the caregiver to find, screen, negotiate pay and coordinate times with the nurse independently.

Our capstone team will use a scrum methodology for organizing the development of our web application, consisting of two-week development sprints followed by unit testing and demonstration of a deliverable. A main constraint of our project is that time and resources do not permit extensive testing of our application. In addition to unit testing while developing, upon completing an initial prototype, we will perform beta testing—gathering a group of diverse expected users to interact with our application and provide feedback. At the end of our capstone project, we will have completed a prototype web application that matches patients with registered nurses based on the nature of the medical attention required, time availability and preferred hourly rate. We will modify our initial prototype based off user feedback received in beta testing, but our product will not yet be in the production stage. More rigorous testing would be necessary for a production level deployment.

A Cost to Convenience: How Consumers Manage Privacy Values Online

How are consumers managing their privacy values through their behavior online? A 2014 survey revealed that 90% of Americans “agree” or “strongly agree” that people have lost control over how their personal information is collected and used. A 2017 survey found that just 9% of social media users were “very confident” that social media companies would protect their data (Rainie, 2018). However, as concern over data privacy grows, social media use and e-commerce sales proliferate. In 2017, seven-in-ten American adults reported they use some kind of social media platform—a fourteenfold increase from 2006 (Rainie, 2018). Consumers face a new challenge of reconciling their privacy values with their near obligatory online presence.

Barth and De Jong (2017) refer to this discrepancy between expressed privacy values and uninhibited online behavior as the “privacy paradox.” They conclude that this consumer behavior is the product of a risk-benefit calculation that “ultimately chooses benefits over risks.” But are consumers truly acting paradoxically when their choices are limited? Reddick, Chatfield and Jaramillo (2015) analyzed public opinion on National Security Agency (NSA) surveillance programs and found that citizens who are more engaged and exhibit politically efficacious behavior are more likely to disapprove of the surveillance policy. NSA video surveillance compels what some perceive as a trade-off between privacy and security, just as online data collection compels a trade-off between privacy and convenience.

In California, advocates of data privacy organized a coalition called Californians for Consumer Privacy (CCP), which stands for three main principles: transparency, control and accountability (Mactaggart, 2018). The founder of CCP, Alastair Mactaggart, fought for the passage of the California Consumer Privacy Act (CCPA) in 2018. The group now advocates for additional protections, including the establishment of a California Privacy Protection Agency. A

nonprofit organization advocating for stronger data privacy laws at the federal level is the Center for Democracy & Technology (CDT), in Washington, DC. CDT proposed to Congress a law to regulate data practices similar to the EU's 2016 General Data Protection Regulation (CDT, 2018).

An opponent of data privacy legislation is the Internet Association, a trade association of tech giants including Amazon and Google. In a 2018 statement, IA condemned the passage of the CPPA, especially for the “lack of public discussion and process” (IA, 2018). Facebook, itself an IA member, is at the center of the data privacy debate as the most popular social networking website (Statista, 2018b). In an op-ed for the *Wall Street Journal*, CEO Mark Zuckerberg defended the data-reliant business model of Facebook, highlighting that ad revenue enables “billions of people get a free service to stay connected to those they care about and to express themselves.”

The mission of the Federal Trade Commission (FTC) is to protect consumers from unfair and deceptive practices in the marketplace, and thus, it is the regulatory agency that protects data privacy. In 2019, the FTC organized a record-breaking \$5 billion penalty settlement with Facebook for “betraying the trust of its users and deceiving them about their ability to control their personal information” (FTC, 2019).

Some organized groups pressure corporations to protect data privacy. Following Mark Zuckerberg's testimony to Congress, the American Civil Liberties Union (ACLU) rebutted Zuckerberg's claim that Facebook users have full control of all their information and recommended further actions for Facebook to take going forward (ACLU, 2018).

Unorganized consumers also play a role by striving to protect their privacy while continuing to be active online. Following a stream of Facebook controversies, a Twitter

movement known as #DeleteFacebook emerged in 2018, and remains active. Under the hashtag, users voice their distrust of Facebook and attach screenshots showing them deleting their own accounts. The hashtag has garnered the attention of Zuckerberg who responded, “It’s not good... it’s a clear signal that this is a major trust issue for people” (Roose, 2018).

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