

# **Undergraduate Thesis Prospectus**

**Redefining the Digital Storefront**  
(Technical Report)

**The Organized Resistance to Amazon's Market Dominance**  
(STS Research 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 for  
Thesis-Related Assignments

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## **General Research Problem**

*How can small brick-and-mortar businesses improve consumer outreach and sales?*

According to the Bureau of Labor Statistics (2016), about 20% of all companies will fail within their first year. Almost 50% will be out of business in five, while 70% won't survive past twelve (Bureau of Labor Statistics, 2016). Owning a small business is extremely difficult, not only due to volatility, but because small budgets compel the owner take on extensive responsibilities. Many small businesses will neglect services such as marketing in favor of continued product development.

The National Federation of Independent Businesses (2016) identified the most common problems small businesses face. Two of the most prominent include the “handling [of future] business growth” and the means “to cost-effectively advertise” (Wade, 2016). A third problem was effective use of “computers, the Internet or new technology” (Wade, 2016). Many business owners struggle to adapt to technology. Infusionsoft (2019), in a survey of almost 1,500 small business owners, found that 29% did not intend to use any form of digital marketing in 2019. 30% of the rest professed a difficulty in “finding the time and resources necessary for effective [digital] marketing,” while 43% found “retaining customers and generating web traffic” challenging (Infusionsoft, 2019).

## **Redefining the Digital Storefront**

*How can a digital storefront affect consumer engagement, outreach, and sales?*

I am working with Professor Nada Basit of the Computer Science Department on an independent project with no collaborators.

### *Project Importance*

The Internet is clearly the future of business. The U.S. Department of Commerce (2019) reported that online transactions accounted for \$146.2 billion in sales in just the second quarter of 2019. To improve consumer outreach, a small business must utilize this market. The current options for these businesses include either the development of their own company website or an online marketplace. While the former is perhaps the best option for an established business, business owners without the technical knowledge to build a custom site will end up using a black-box solution such as Shopify. Shopify, and similar alternatives, requires both monthly and transaction fees, and marketing is still necessary to generate engagement and clicks. In contrast, an online marketplace such as Amazon can eliminate fees and still process transactions, but ultimately will not generate foot traffic or have an effect locally.

A poll conducted by Insureon (2018) of more than 2,400 small business owners found that 43% experienced “sizeable revenue growth” after implementing a method to process online transactions. Therefore, for many small businesses, the solution to improved sales and outreach comes from expanding their digital footprint. However, without an established following, a business must decide to either invest in their own site and marketing or to forgo marketing and use an online marketplace to process transactions.

I have been developing an alternative option that attempts to merge the advantages of both a business's custom site and an online marketplace in the form of a third-party platform. Any business or merchant that creates an account can build a personalizable "digital storefront" explicitly intended to drive local foot traffic. They will gain the functionality to showcase their inventory, process online transactions, measure reception and engagement, and more. In lieu of targeted marketing beyond highlighting specific businesses, the platform will utilize Google's Geolocation and Maps APIs to match businesses with local consumers, similar to platforms such as Postmates or Grubhub. Simply having a business account on the platform will help drive awareness of a brand, as the business will be searchable to any consumer who enters a relevant query.

### *Project Goals*

Before I graduate, I want to have a build of this concept hosted online. Although I fell short of my initial goal to have a prototype ready by the end of October, I believe that it is feasible to expect development to finish before the end of the year so that the first few months of 2020 can consist of refactoring.

### *Project State-of-the-Art*

There are currently three options for business owners regarding processing online transactions and managing their digital footprint: developing a custom website, using an online marketplace, or establishing a presence on another third-party platform. Each of these have benefits and drawbacks, but none truly provide a similar service to mine. A custom website requires an initial investment, and upkeep may not be feasible for the

non-technically inclined. An online marketplace, such as Amazon or EBay, will not drive local traffic. Other third-party platforms focus individually on either the “transactions” or “marketing” aspects of running a business, but do not offer a solution that does both simultaneously. Yelp, for example, focuses mainly on community engagement and feedback, but has not successfully marketed a successful solution for transactions. The Yelp Transactions Platform, launched in 2013, is still limited to a few categories of business and solely works through third party services acquired by the company.

### *Project Methodology*

The project framework currently consists of a tech stack that mainly includes MongoDB, Express, React.JS, and Node.JS. MongoDB is primarily responsible for managing the database, and is integrated with the project through Mongoose schema. Express and Node.JS both work to host the backend server, while React.JS implements the front-end. To manage React.JS states across the platform, I made use of Redux, while Passport.JS manages authentication. I am also using Google’s Geolocation and Maps APIs to generate location data, and will implement either Square or Stripe’s API to process payments and transactions.

### *Project Conclusion*

By the end of this project, I hope to have a working prototype of this concept available online. I want to set aside about two or three months early next year to refactor the entirety of the code and componentize the architecture used. After finalizing devel-

opment, I will need to learn more about server architecture before hosting. I want this service to end up becoming as a startup so I can begin to market it extensively.

## **The Resistance to Amazon's Market Dominance**

*How have critics of Amazon's market dominance organized to resist its spread?*

### *Project Importance*

Amazon is no stranger to controversy. Since its founding, critics have accused the retail giant of engaging in anti-competitive practices and stifling local retail businesses (Freed, 2019; LaVecchia, O. & Mitchell, S, 2019). The numerous objections date back to 1999, when the Free Software Foundation boycotted Amazon due to its patenting of “1-Click” technology (Stallman, 1999). Currently, Amazon faces an antitrust investigation, in part due to its general dominance in retail but also for its specific effect on local businesses. In a statement to the House of Representatives, Stacy Mitchell (2019), the Co-Director for the Institute for Local Self-Reliance, argued that “Amazon’s platform has become essential infrastructure for producers and retailers of consumer goods.” She concluded that retailers must either lose sales to Amazon or become third-party sellers on its marketplace, costing them a portion of their revenue (Mitchell, 2019).

In response, Amazon has published a “Small Business Report” for the last two years intended to demonstrate its benefits to small businesses. In 2019, it reported that small and medium businesses now account for more than 58% of total sales on their marketplace, supporting 1.6 million jobs (Wilke, 2019). Amazon also gave away more than

\$500 million in Amazon Web Services credit and helped hundreds of thousands of independent startups scale their businesses (Wilke, 2019).

### *Project State-of-the-Art*

In “Amazon’s Antitrust Paradox”, Khan (2017) concludes Amazon is not a monopoly, but suggests that the definition should be revised. In “Winning by Losing: The AT&T Settlement and Its Impact on Telecommunications”, McAvoy and Robinson (1983) studied the AT&T antitrust lawsuit and its effects, concluding that AT&T actually benefited from the breakup due to the subsequent deregulation. Amazon faces no similar threat of a court-ordered breakup.

### *Project Participants*

Major participants include Amazon, ILSR (Institute for Local Self-Reliance), NFIB (National Federation of Independent Business), and SBA (U.S. Small Business Administration). In 2019, Amazon was the eighth largest lobby in D.C., and has given away almost \$12.4 million to interested parties (LSD, 2019). ILSR argues that “economic systems should embody democratic values.” It claims that it is “fighting unfettered corporate control in all its forms” (ILSR, n.d.). NFIB is an advocacy group that champions small businesses, representing “members’ interests ... in Washington D.C.” (NFIB, n.d.). SBA is also an advocacy group, created in 1953 as an “independent agency of the federal government” (SBA, n.d.). They mainly review Congressional legislation and assess its impact on small businesses (SBA, n.d.). Amazon has chosen to partner with them on two occasions to host local entrepreneurial events (Nania, 2018).

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