

E-COMMERCE FOR BETTER CONSUMER-SHOPPING EXPERIENCE

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11/5/19

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Summary

The world of e-commerce has significantly changed consumer behavior today, including the way consumers shop, evaluate, and pay for products and services. These behaviors have resulted from the growth of integrated digital tools that empower online businesses. Nearly two-thirds of the U.S. population currently own or use mobile devices and prefer more mobile experiences, because of their efficiency and their ability to expand interaction between the consumers and their devices. Since 1994, several other emerging technologies, along with e-commerce, have reframed today's shopping experience, which weakened the applications of e-commerce sporadically. David Luong, who has taken courses at RIT's School of Information on web and mobile design and development and e-commerce, is qualified for attempting to prove that e-commerce will continue to influence online retail and mobile-shopping apps.

Introduction

The project requires an advanced study, which explores the potential impacts e-commerce has on mobile-shopping applications: shopping websites and mobile-shopping apps. In the past decade, the popularity of digital technologies, including web and mobile applications, has established a totally different, but more positive consumer behavior. The noticeable outcomes (e.g., high customer satisfaction and retention) may weaken over time if other emerging technologies, such as the Internet of Things (IoT) and Artificial Intelligence (AI), progress faster in the rapidly changing economy. Such emerging technologies have introduced more data-driven applications in which users can get things done quicker with less manual work. Currently, the advantages of emerging technologies outweigh those of e-commerce alone. For this project, at most 500 user participants, consisting of at least two faculty, two staff, and students in the School of Information, are needed. Also, tracking tools, Google Analytics 360 and UserReport, will be used to assess the latest performances of mobile-shopping applications to help support the significance of e-commerce to these applications.

The project is suitable for the research grant, because it requires both frequent qualitative analysis to reinforce the effect of e-commerce on consumers' mobile-shopping experiences, and frequent testing to prove that e-commerce is still effective. David Luong proposes this project in preparation for presenting his senior design topic: using e-commerce to leverage mobile shopping.

Methodology

Up to 500 user participants are selected from RIT's School of Information to assist with the testing phase, and will receive a \$20 Barnes & Noble's gift card for their participation.

The main tools that will be used are Google Analytics, and UserReport. Google Analytics provides easy-to-use features for tracking real-time performance of web applications and various states of user behavior. UserReport, which integrates with Google Analytics, is a collaborative feedback tool that will be used to directly interact with a sample of existing users, who are randomly selected based on the results from the two analytics tools, and evaluated by their most frequent activities and the amount of time spent on each activity. In addition, Confluence will serve as a central repository for recording the test results and milestones.

To simplify the project's workflow, an Agile-based Software Development Life Cycle (SDLC) will be used, since it puts greater emphasis on the users than their roles. The SDLC involves five major phases: *Planning*, *Analysis*, *Design*, *Implementation*, and *Maintenance*. It divides the ten-week project into as many short intervals needed. Within the allotted *time* for completion, brainstorming the most frequently used e-commerce sites and apps should last a week, followed by careful planning of upcoming project steps. Quantitative measures of user satisfaction with the mobile applications tested are submitted when the *implementation* phase is reached. Equally important, testing may take place during and after *implementation* to ensure maximum viability.

Areas of testing include:

- *Frequently used features & sections:*
 - There may be elements of an application that users use more of due to their ease of access and navigation.
 - There may be portions of an application that users often turn to due to its easily digestible information or information that entices the user.
- *Total daily time spent on an application:*
 - Every day within the ten-week period, the amount of time spent by users serves as a key performance indicator (KPI) of an application's popularity.
- *Quality of application performance:*
 - An application with a consistently high performance attracts more users.

By the end of the *Implementation* and *Maintenance* phases, all the record result should be stored in Confluence, and each stage of the project should be marked as completed.

Materials / References

1. Rented smartphones (iPhones, and Android Phones), and tablets (iPads)

2. UserReport:

Simple user engagement tools, that help you improve. (n.d.). Retrieved October 28, 2019, from <https://www.userreport.com/features>.

3. Google Analytics:

Su, B. (2018, June 8). What is Google Analytics, and why is it important to my business? Retrieved October 28, 2019, from <https://medium.com/analytics-for-humans/what-is-google-analytics-and-why-is-it-important-to-my-business-8c083a9f81be>.

Matteson, S. (2015, July 30). Five things you should know about Google Analytics. Retrieved October 28, 2019, from <https://www.techrepublic.com/blog/google-in-the-enterprise/five-things-you-should-know-about-google-analytics/>.

4. Confluence:

Atlassian. (n.d.). Confluence - Team Collaboration Software. Retrieved November 5, 2019, from <https://www.atlassian.com/software/confluence>.

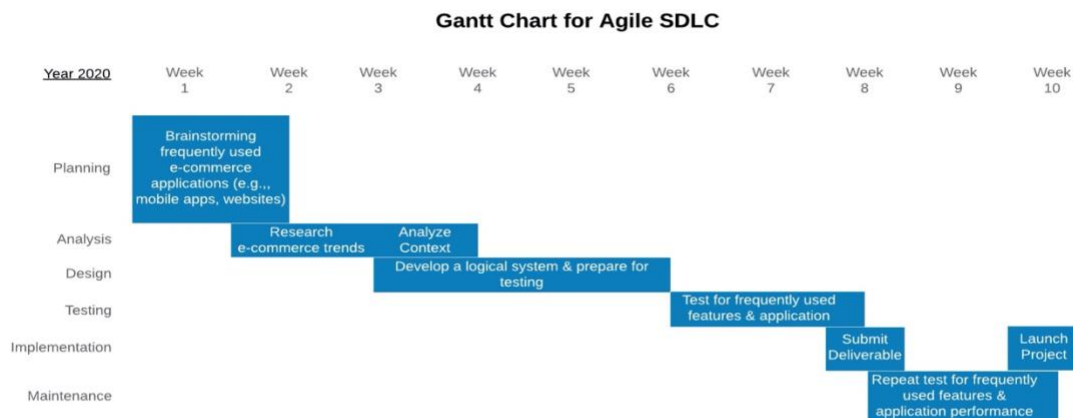
5. Resources on e-commerce:

Smith, A., & Anderson, M. (2016, December 19). Online Shopping and E-Commerce. Retrieved October 28, 2019, from <https://www.pewinternet.org/2016/12/19/online-shopping-and-e-commerce/>.

Smith, A., & Anderson, M. (2016, December 19). Online shopping and Americans' purchasing preferences. Retrieved October 28, 2019, from <https://www.pewinternet.org/2016/12/19/online-shopping-and-purchasing-preferences/>.

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Schedule of Work



Budget

Tools Used	Expense
Google Analytics 360	\$1,890
UserReport	\$0.00
Confluence (Standard version)	\$10.00 (First month for FREE, then \$5/month)
Rental fee of smartphones and tablets from equipment cage (Note. this is a single fee)	\$100
Barnes & Noble's gift cards (500x)	\$10,000
Total: \$12,000.00	

Biographical Background

David Luong is a 5th year undergraduate student who studies Information Technology in the School of Information at RIT. In addition to his taking required core courses related to web and mobile design and development and systems design, he has utilized other

available resources, such as online courses published by other universities, for continuous education. Among the topics learned from various courses, the following topics are most crucial in supporting this project: web and mobile design, front-end development (client programming), back-end development (server programming), and information requirements modeling.

Lecturer Stephen Cady, who is highly experienced with designing the User Experience (UX), is the selected advisor of the project. He has an affinity for diverse design projects, not only those of UX, but also those of information design, mobile design, and interaction design. He has been teaching courses at RIT that influences the applications of e-commerce: Foundation of Mobile Design (ISTE-252) and Designing the User Experience (ISTE-260).

Conclusion

E-commerce will continue to shape consumers' mobile shopping experiences and reframe related businesses. Due to its efficiency and its ability to optimize costs, such as consumer prices, e-commerce should be maintained regardless of whether other emerging technologies produce more benefits. Considering the rise of app stores and online retail, consumers will unlikely return to shopping at physical stores because physical stores sell the same off-site items off-site for a higher price, and requires time and transportation fees to arrive on-site. Although emerging technologies may surpass e-commerce, none of them has been confirmed as the best shopping-experience provider. This project should be invested on because it primarily focuses on the user experience, and promises to maximize support for e-commerce as a continuous trend in modern-day shopping.