Thesis Project Portfolio

Android Development for an e-Commerce Company

(Technical Report)

General Data Protection Regulation Compliance on United States Based Small to Medium Sized Enterprises

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

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In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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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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Sociotechnical Synthesis

Introduction

My STS research project and aspects of my technical capstone project focus on the General Data Protection Regulation present within the European Union (GDPR). While my STS research project dives in deep on concepts such as compliance, interpretative flexibility as seen in the framework Social Construction of Technology (SCOT), and GDPR, my technical project highlights a past summer internship experience where I had some exposure as to how companies in industry handle GDPR compliance needs. These two projects tie together with that common thread, complementing each other well.

Summary of Capstone Project

My technical capstone project highlights a past summer internship experience I had working for a particular e-commerce company. To encompass changing regulations, requirements, research, and products, and maintain customer demand, changes on an e-Commerce App must be fast, effective, and comprehensive, especially during in-App promotional periods. To satisfy these requirements for the company for which I interned, I used android app engineering to deliver results during the sprint timeline. Approaches involved localization work utilizing an internal translation tool and corresponding with other stakeholders like backend engineers and international geos teams to ensure seamless functionality. All coding utilized Android's native language, Kotlin, and Java. Major outcomes included an App page modification to comply with General Data Protection Regulation (GDPR) and fixed image upload functionality for the App's "Write a Review" page. Part of the work I did was work on the company's app whose usage covered the European Union, and thus was applicable to GDPR compliance needs. One such ticket (portion of software engineering work) I took was to make sure a particular app page was compliant to GDPR in terms of word usage. Future work includes

further learning Android App Development to move on to more advanced tickets related to refactoring old modules present within the codebase.

Summary of STS Research Paper

My STS research paper dives into how GDPR compliance uniquely impacts United States based small to medium sized enterprises (SMEs). The sociotechnical framework I chose was the Social Construction of Technology (SCOT) by Pinch and Bjiker, where I chose to focus on interpretive flexibility in interpreting the same artefact amongst different groups. In particular, US SMEs face financial and regional pressures that incumbents, due to larger size or location in the European Union, fail to face to the same degree. Thus, the implications of compliance based on the size and location of the entity mean different executional pathways, applying different pressures based on the interpretative flexibility in the methodologies needed to remain compliant. This research can be helpful for US based SMEs interested in expanding their business into European Union countries. Future research can investigate how GDPR impacts European Union based SMEs as well.

Conclusion

Working on both the technical project and the STS project at the same time helped me garner a sense of real-world impact on my contributions to the company I interned for. Exploring the world of GDPR compliance broadened my worldview, and provided much needed context of the importance of that ticket I took on over the summer -context of which was not provided at the time. Often in software engineering, since portions of work can be outlined so clearly, it becomes difficult to see why the code is being implemented, and the greater purpose it holds for the company. Understanding how different sized and geographically located enterprises are impacted

by GDPR helped provide that greater context and further drove my understanding of how

software engineering can look like in industry.