Thesis Project Portfolio

Improving a Customer Support Chatbot

(Technical Report)

Understanding Resistance to Return-to-Office Initiatives by Investigating the Transition to Remote Work and Its Effects

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Table of Contents

Sociotechnical Synthesis

(Executive Summary)

Remote Work and the Return to Office After the Covid-19 Pandemic

My thesis project focuses on modern working methods (in-person, hybrid, and remote) within the technology industry during and after the COVID-19 pandemic. The pandemic forced drastic changes to how work is done through the transition to remote work, shifting operations from almost exclusively in-person to hybrid or fully remote. As someone starting their career in this post-pandemic work landscape, investigating this area allowed me to better understand motivations for working in-person and remotely from a wider perspective. The technical portion of my thesis discusses my experiences as an intern working within a large, hybrid technology company as I worked to investigate and improve an internal customer support chatbot. My STS research, on the other hand, investigates working methods from a higher level, focusing on the transition to remote work and the lasting effects.

The technical portion of my thesis produced improvement suggestions for a customer support chatbot. As a summer product management intern, I collaborated with a team of developers working on an AI-based customer support chatbot trained on the documentation related to the company's internal pipeline development tool. As other developers within the company used the pipeline tool and leveraged the bot to help troubleshoot issues, I analyzed their satisfaction and suggested improvement areas for the chatbot. To suggest improvements for the chatbot, I leveraged SQL data analysis to understand common issue areas with the pipeline tool and evaluate the chatbots responses, customer interviews to gauge overall satisfaction with the chatbot's assistance, and additional research into better ways to program and train our chatbot. I synthesized this data

to determine that improving the accuracy of the answers generated by the bot regarding specific areas of the pipeline tool and redesigning the self-service and issue escalation menu within the bot to make escalating issues to our support team more efficient would have the greatest positive impact on customer satisfaction. These improvements made to the chatbot will assist customers in using the company's product by delivering fast and reliable answers, as well as reduce customer support costs while laying the foundation for future innovation.

In my STS research, I analyzed the transition to remote work caused by the pandemic and its lasting impact on working in the technology industry considering return-to-office (RTO) backlash. I leveraged the multi-level perspective (MLP), an interdisciplinary framework that analyzes transitions by emphasizing the interplay between factors, to analyze the rise, acceptance, and lasting societal effects of remote work because of the approach's consideration for larger systems and the multidisciplinary factors within them. Through this research, I determined that the shift to remote work was necessitated by the pandemic while RTO initiatives lack a similar catalyst, causing resistance and dissatisfaction among workers within the technology industry. Employees have integrated working remotely into their lifestyles and expectations, meaning that the changes caused by the pandemic are having a lasting impact. The RTO backlash demonstrates an unwillingness to revert to a system that has evolved beyond that, and recognizing and accounting for that will help both organizations and employees within the technology industry establish the synergy desired to move forward.

Ultimately, looking at remote work through both a quantitative system-wide lens of the multi-level perspective as well as through a qualitative lens of personal experience helped form a more well-rounded perspective on the many dimensions of the changing working methods. Leveraging the MLP highlighted the significance of analyzing current events as part of a larger

socio-technical system and yielded insights that can inform those events in real-time. This emphasizes the value of STS perspectives and research for analyzing current events and providing insights that inform ethical decisions at a higher level than simply examining a technology or policy.